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JUNE 1948

# MECCANO

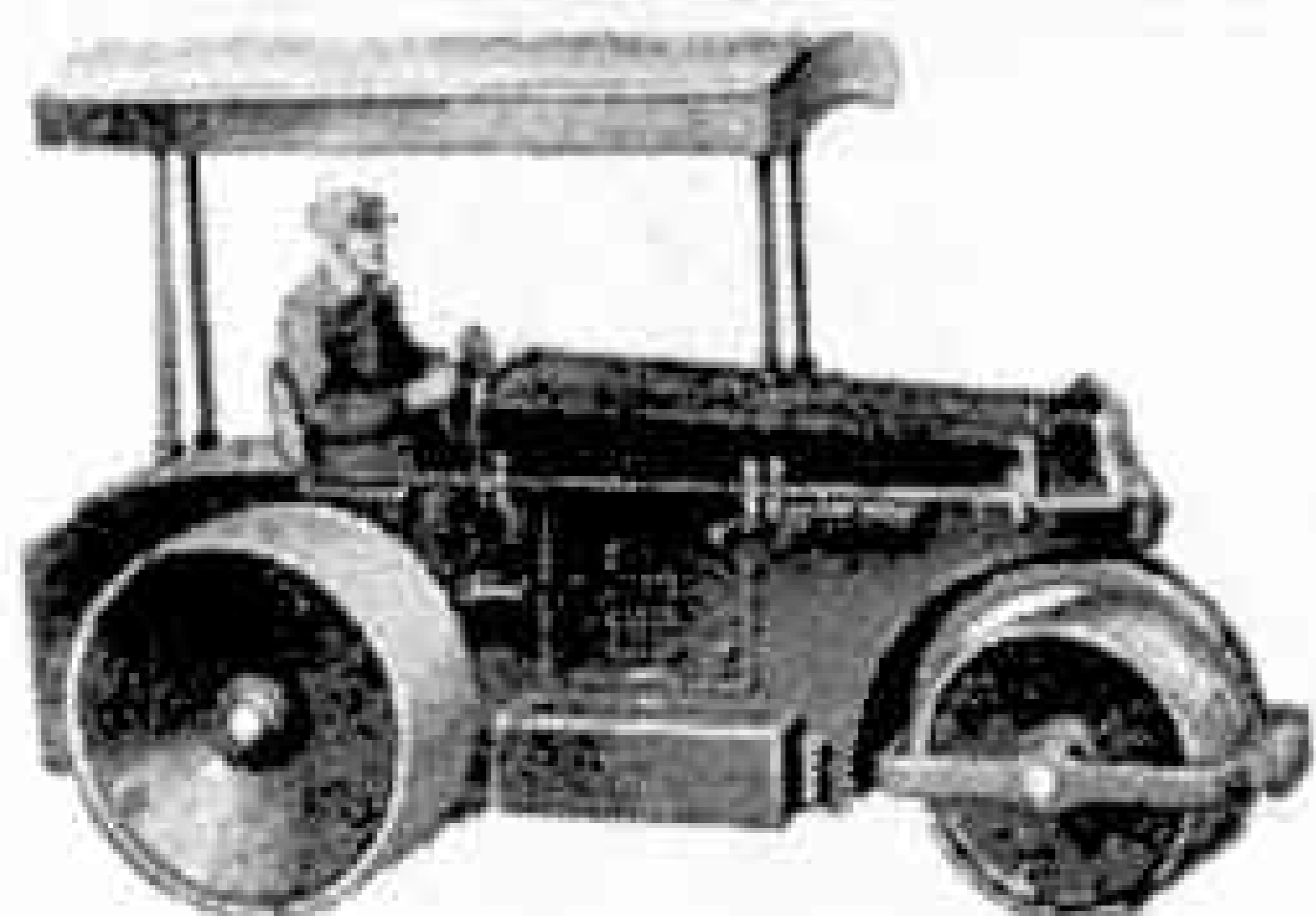
## MAGAZINE



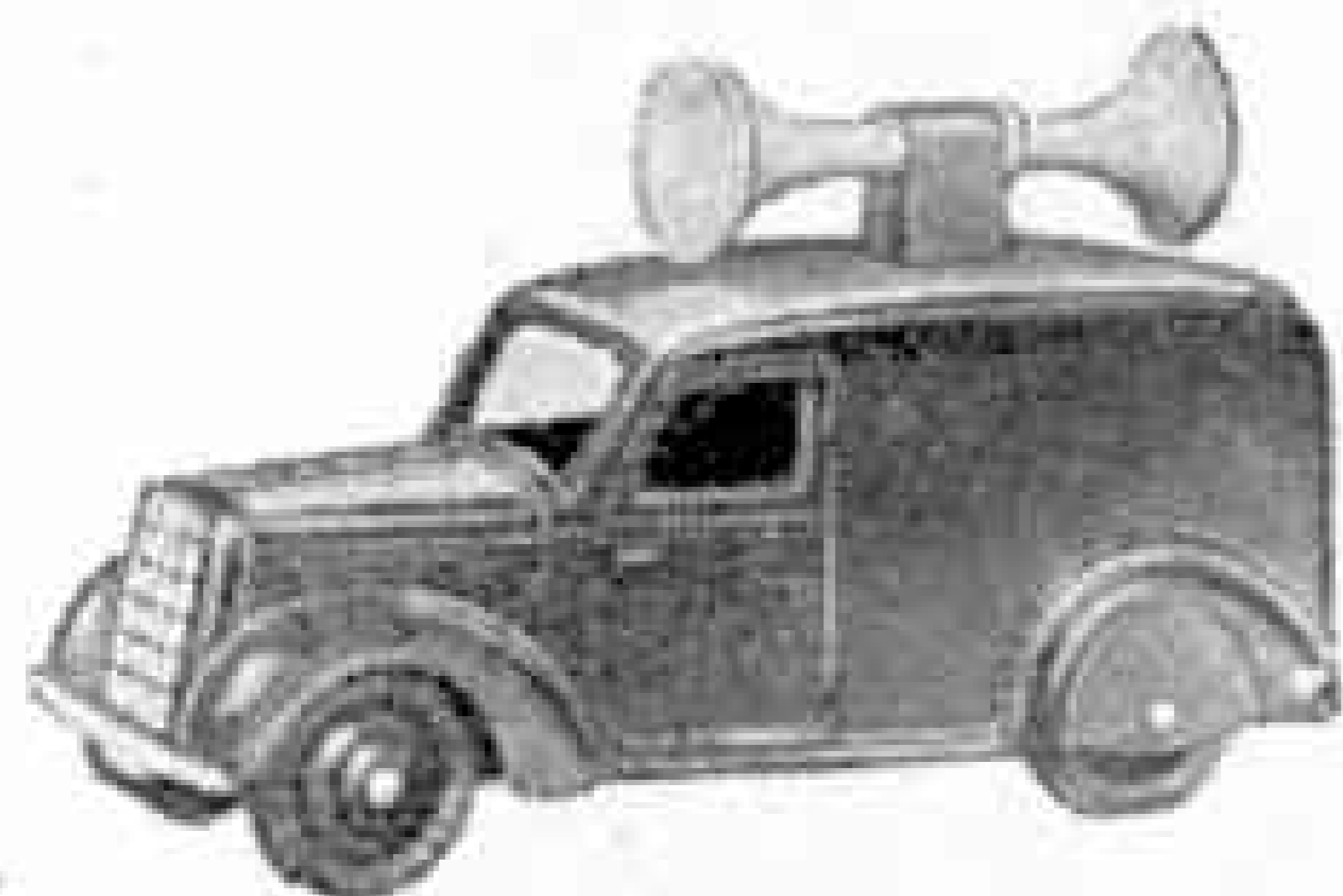
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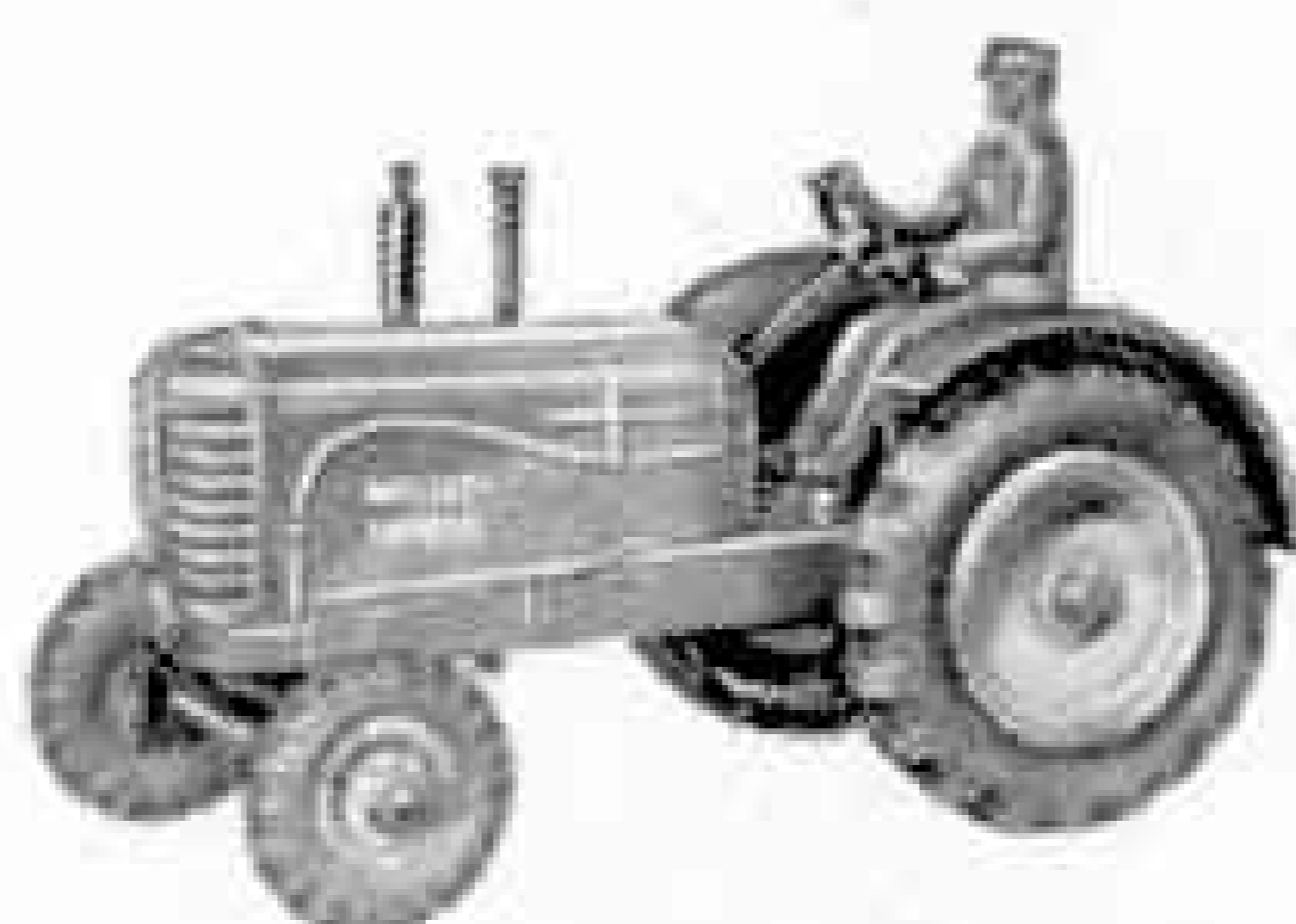


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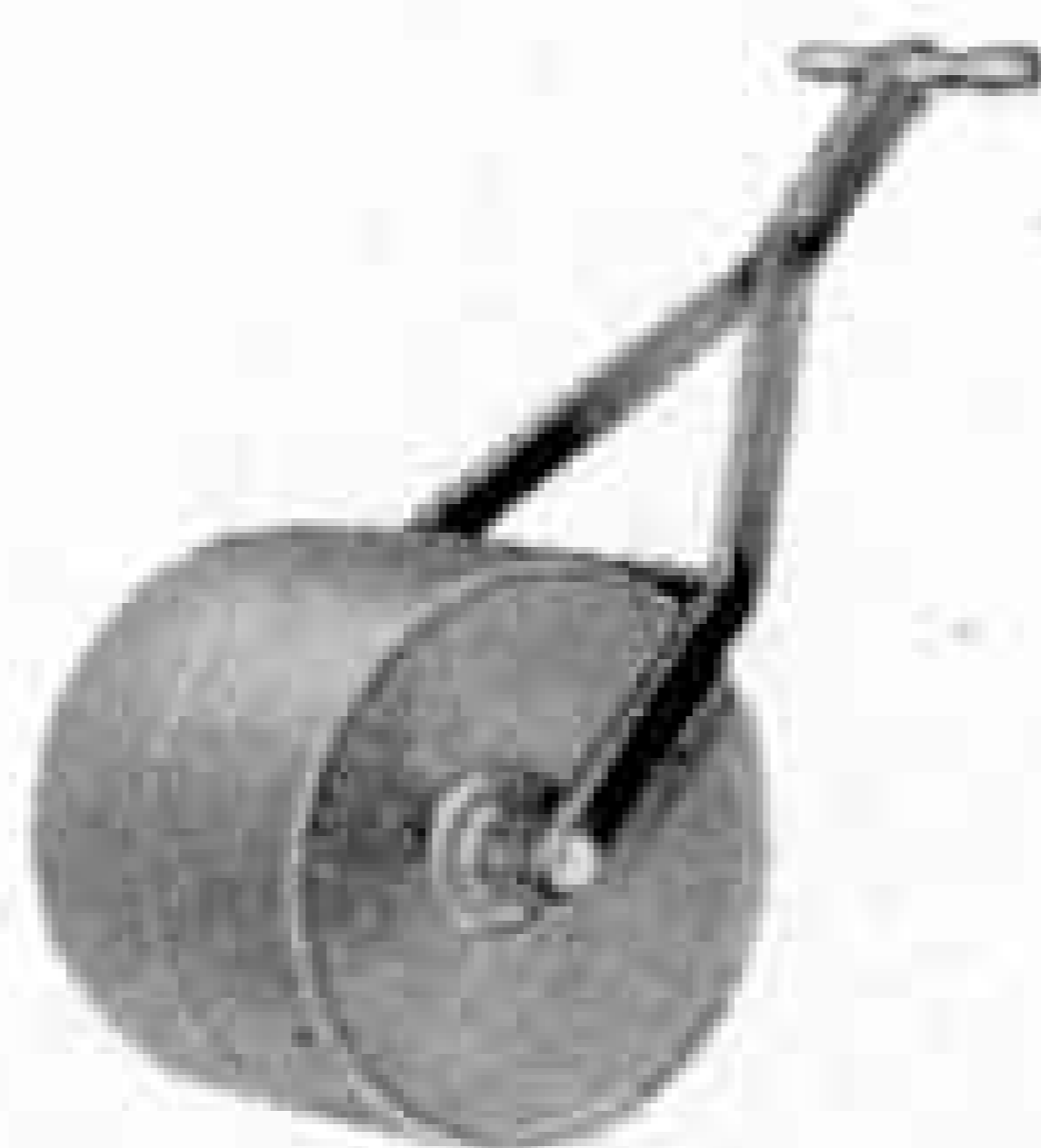


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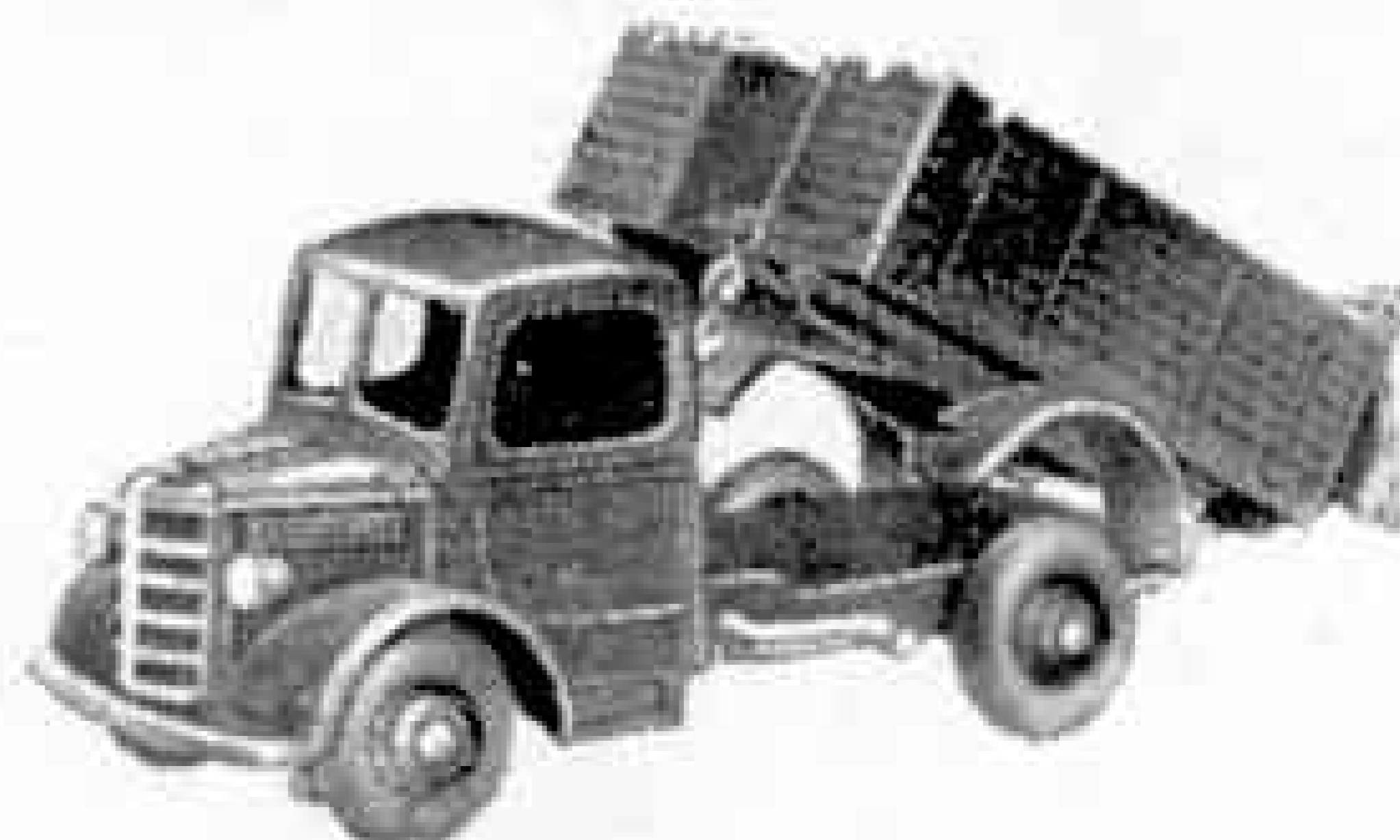
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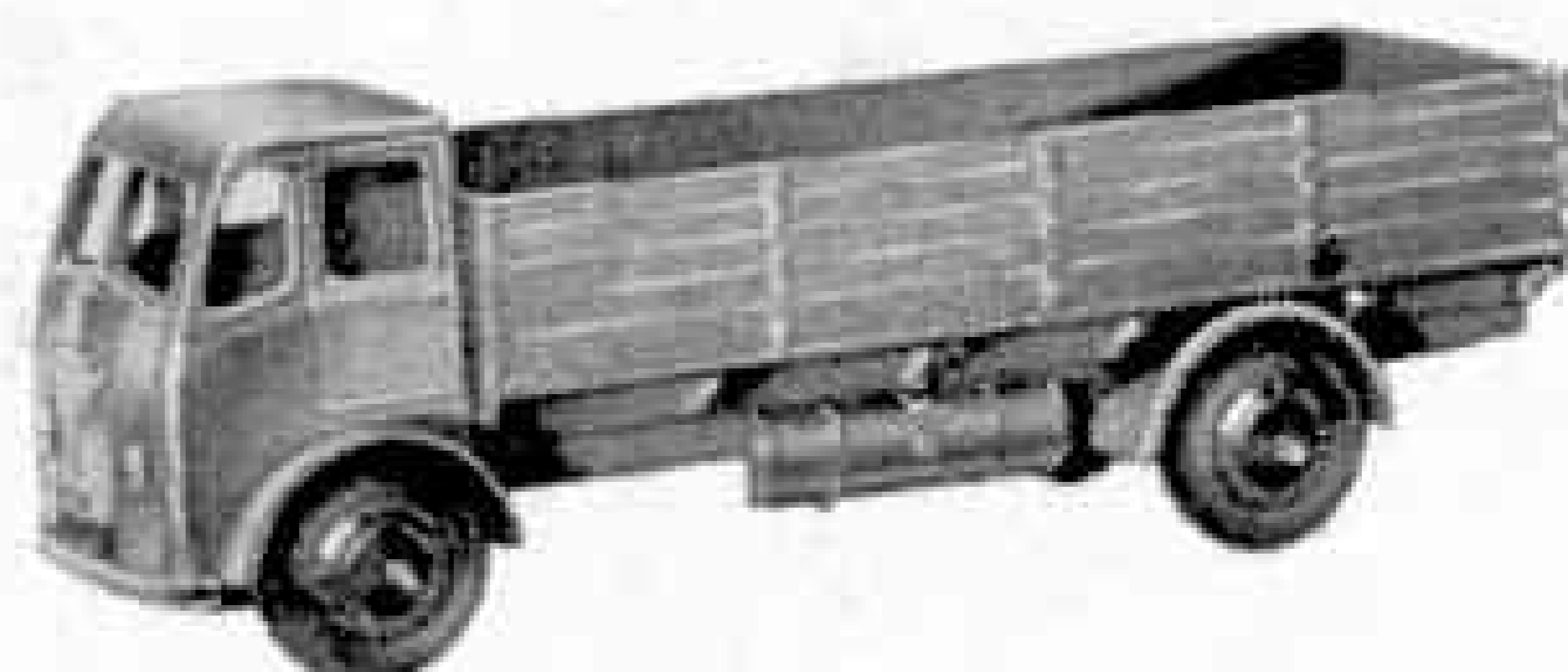
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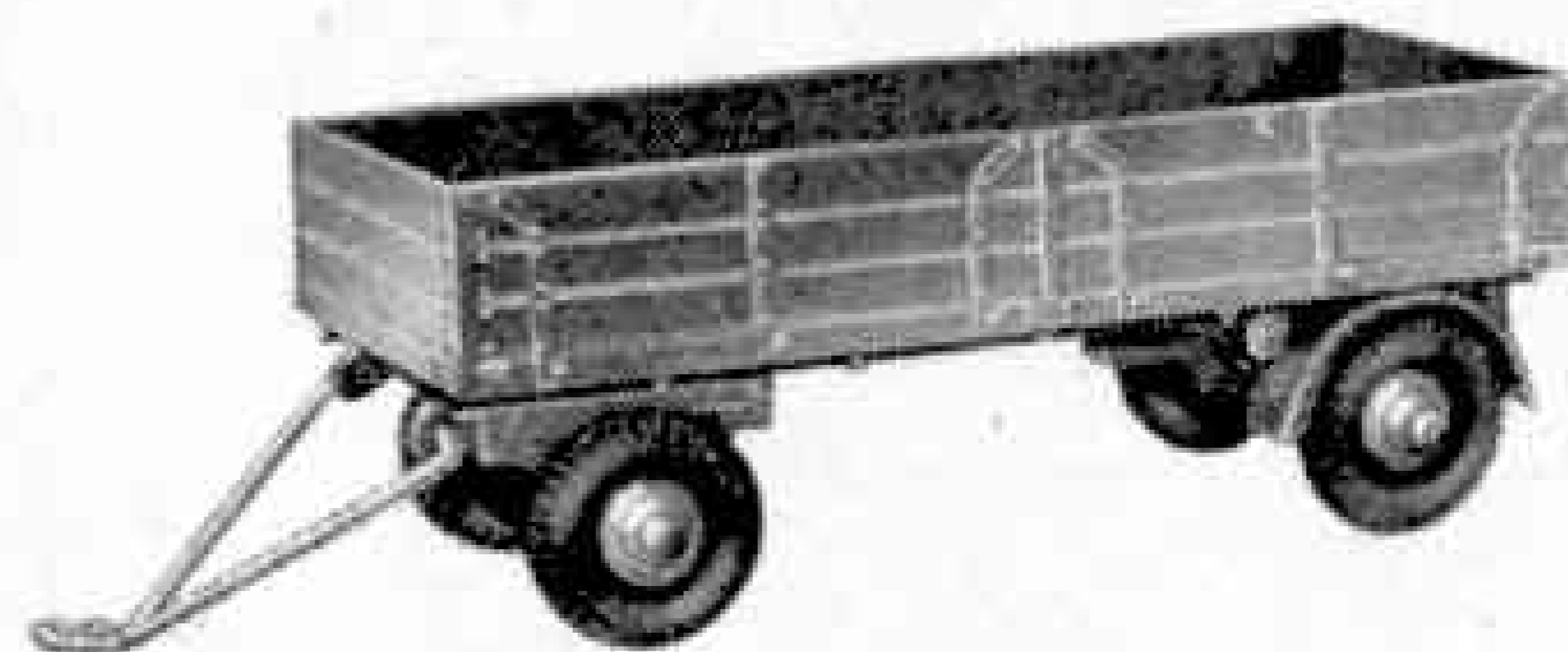


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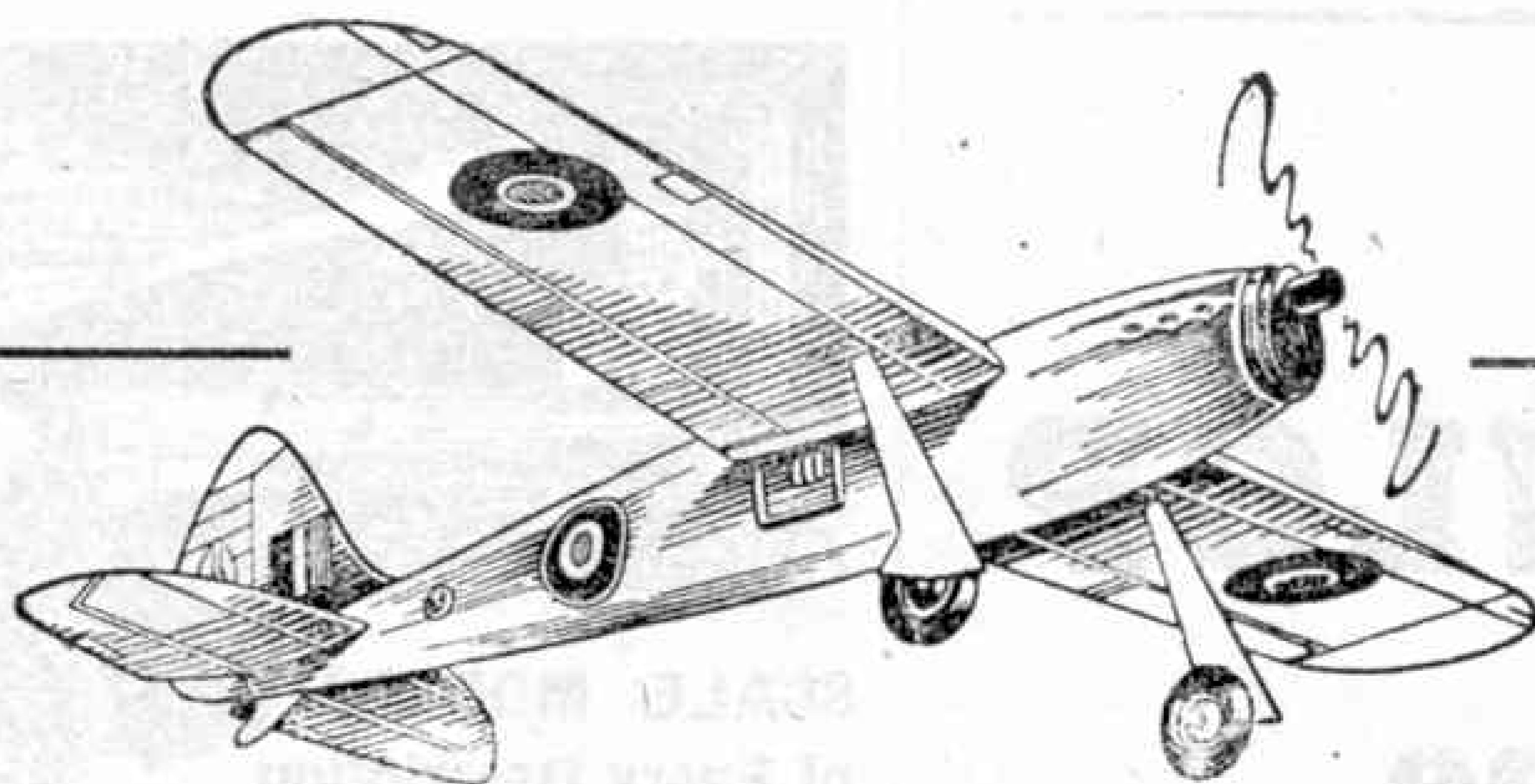
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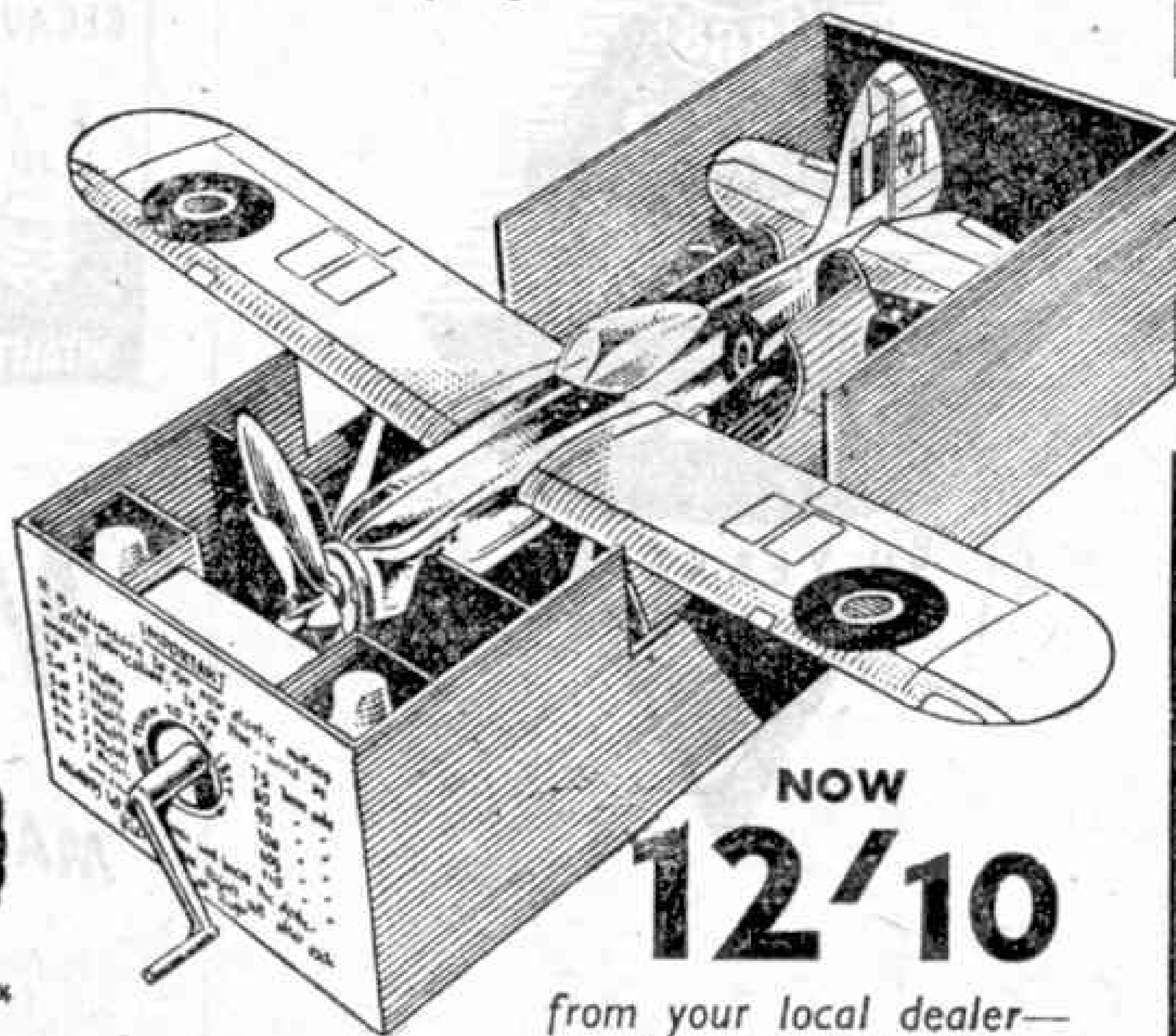
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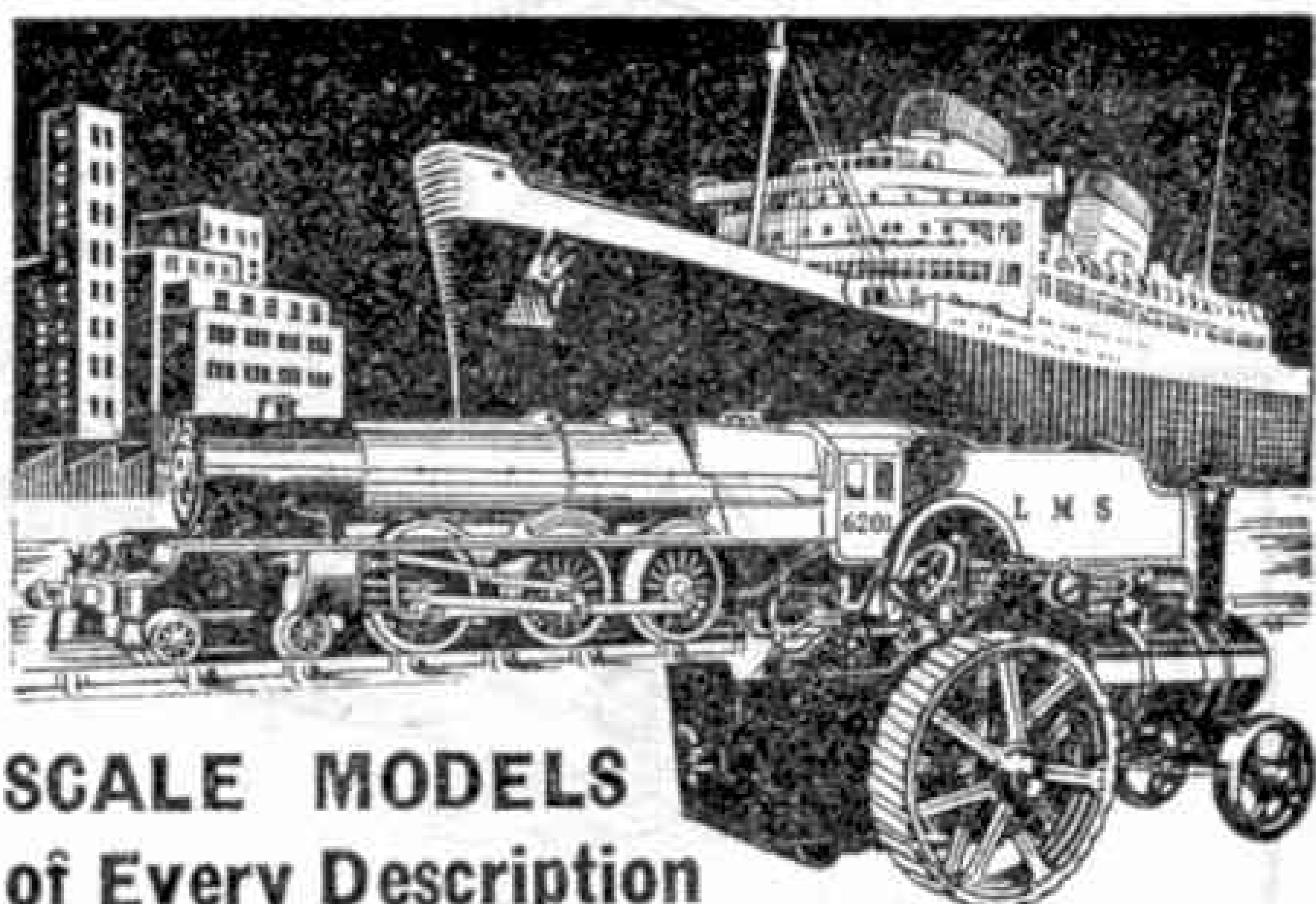
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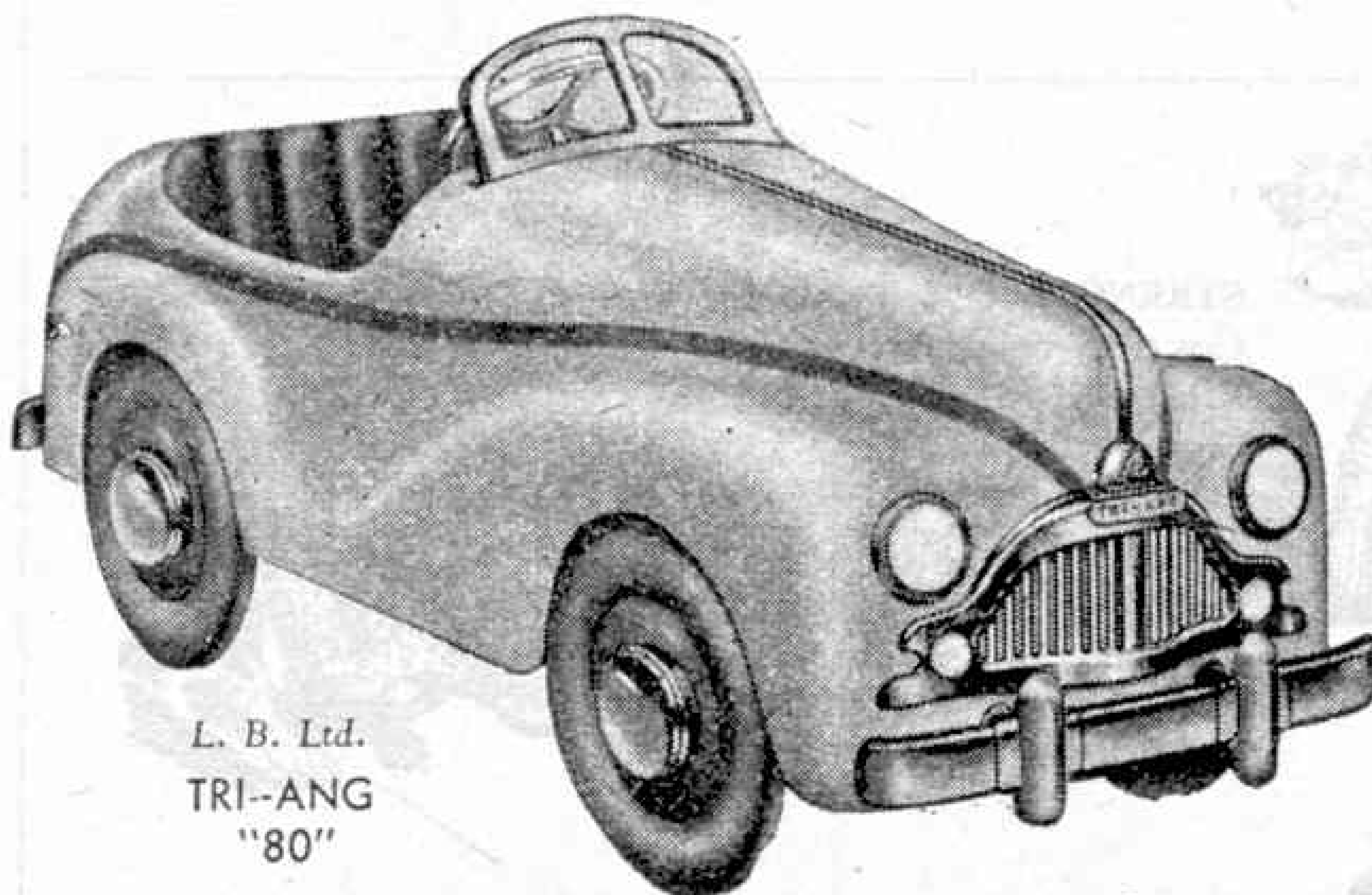
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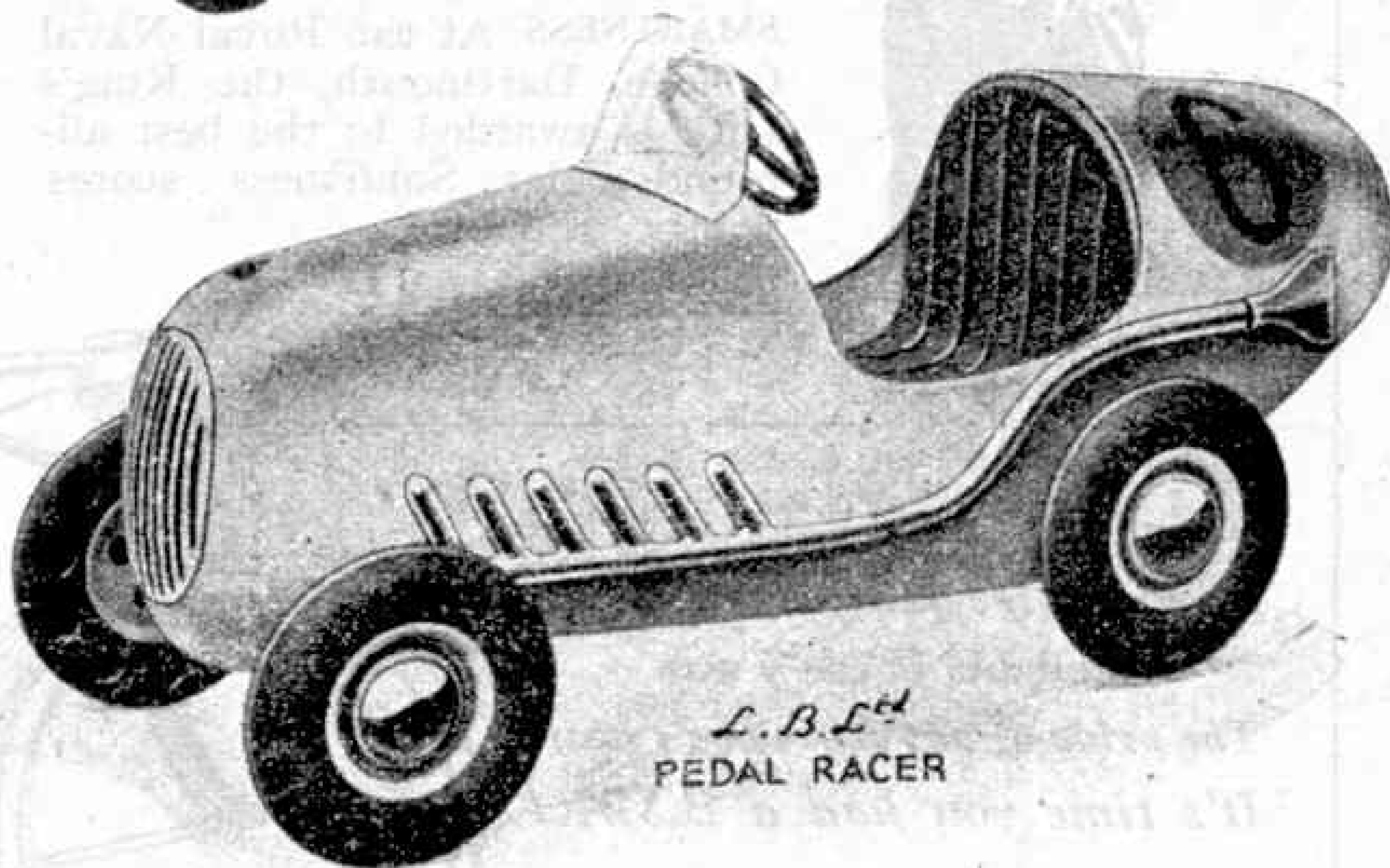
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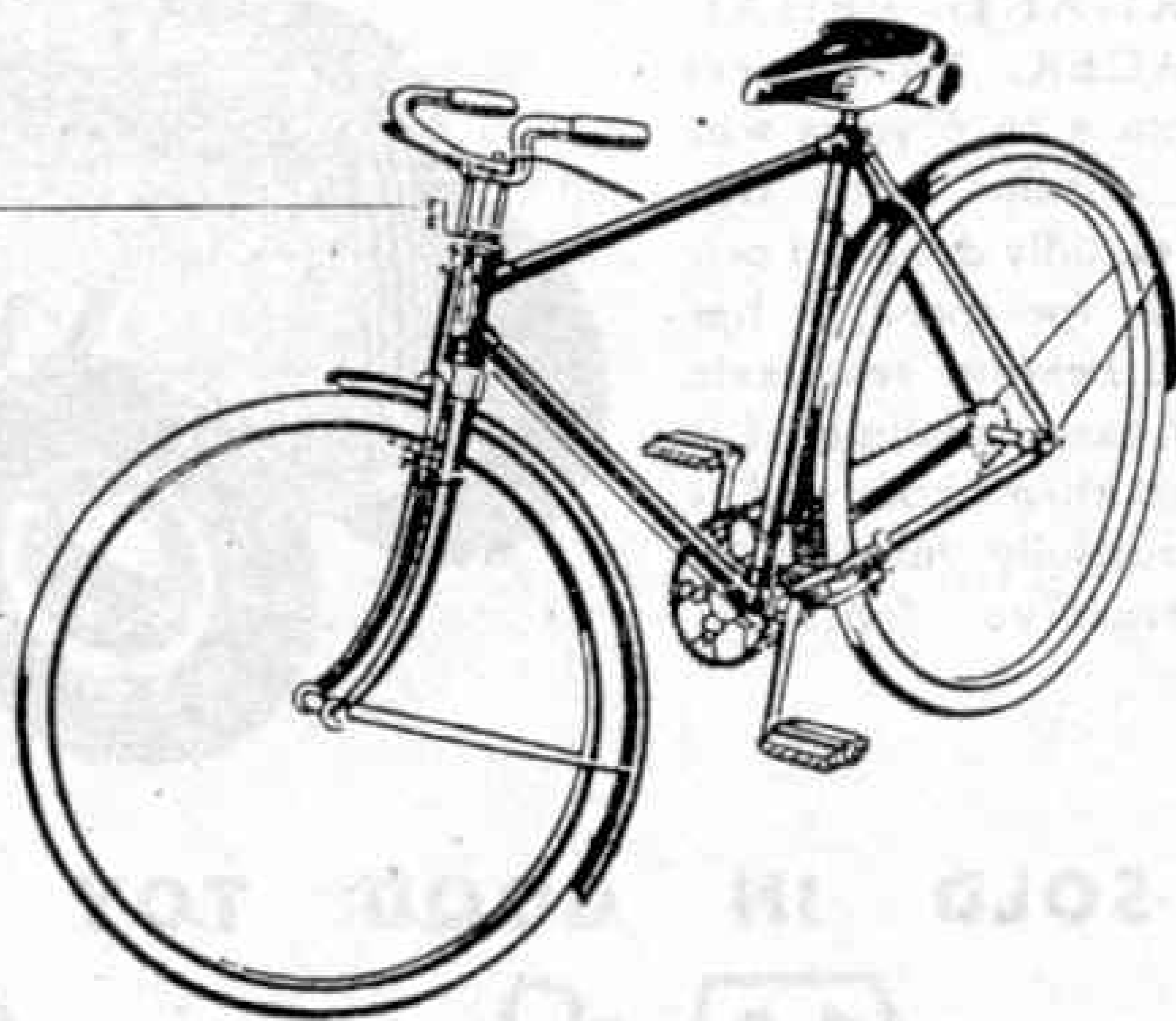
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# MECCANO

## MAGAZINE

Editorial Office:  
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Vol. XXXIII  
No. 6  
June 1948

### With the Editor

#### Motor Racing

All who are interested in motor racing, one of the finest of all sports, must look back with longing to the good old days before the war, when there were regular meetings at Brooklands, the Donington Park course was in full swing, and there were almost countless road races, hill climbs and similar events. To-day Brooklands has gone, and Donington Park is being used for the overhaul of military vehicles and is not likely to become available for the sport for a long time. Efforts to find substitutes for these historic courses have not been successful so far. War-time airfields no doubt could be adapted, but obstacles seem to arise every time a suggestion is made for conversion, and the only one that so far has been handed over by the Government will be fully occupied with testing by the motor car industry and will not be available for competitions.

In the circumstances the programme for the year is excellent, but races of the Grand Prix type in which British cars and drivers can take part will apparently be held almost entirely on the Continent. There will be races in Eire and the Isle of Man, and Jersey has already been the scene of a road race, which was won by F. R. Gerrard with his E.R.A. at a speed of 87.33 m.p.h. But there will be no Ulster Trophy race this year; for a resumption in Northern Ireland we shall have to wait until next year, when it is hoped that a new and better course will be available.

Another encouraging sign is a modest hill climb this month on an entirely new course in a large estate owned by Brighton Corporation. The layout is interesting, with a sweeping S bend, sharp turns and stiff gradients, but perhaps the best feature of the advent of Brighton in the motor

racing world is that a successful meeting there may lead to the construction of a road circuit that in years to come may be one of the happy hunting grounds of the motor racing enthusiast.

\* \* \* \*

A cheering note is struck by the resumption from 31st May of the "*Flying Scotsman's*" non-stop run between London and Edinburgh. This 392 $\frac{1}{4}$ -mile flight of that favourite train was a regular feature of the L.N.E.R. summer programme in pre-war years. The present-day 50 m.p.h., if not as good as the 56 m.p.h. of 1939, is better than the original 47 m.p.h. schedule of 1928. Corridor tenders, allowing the enginemen to be changed on the journey, were designed specially for this run.

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# Rocky Mountains Wonderland

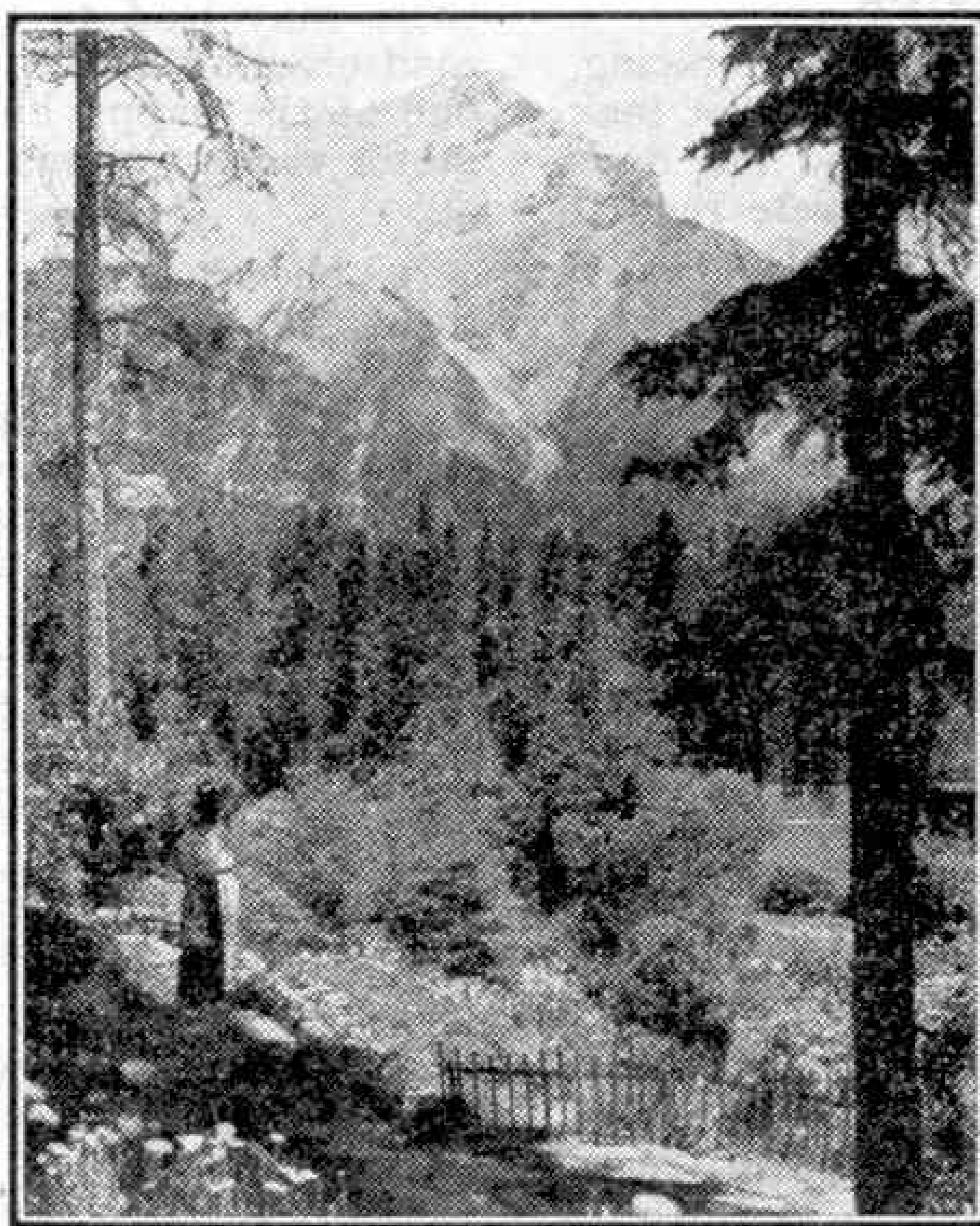
## The Banff National Park

MORE than 60 years ago, when the pioneer railway constructors were driving the Trans-Continental line of the Canadian Pacific Railway through the Rockies, hot springs were discovered on the slopes of Sulphur Mountain. The region in which they were found had not often been visited by white men. It had probably been crossed by the pioneer David Thompson as early as 1800, but the first recorded visit was made in 1841, when Sir George Simpson, then Governor of the Hudson's Bay Company, penetrated the Bow River Valley from the prairie region and crossed the Rockies by the pass that is now named after him. In 1858 and 1859 the region was explored more thoroughly by an expedition led by Captain Palliser. One member of this exploring party was Dr. Hector, who discovered a pass through the Rockies. While Hector was in the pass he was injured by a kick from a pack horse, and the pass itself was immediately dubbed Kicking Horse Pass. Through it the line of the Canadian Pacific Railway now runs.

Hector heard of the hot springs and mentioned them in his diary, written in 1859, but it was not until 1883 that they were actually discovered, by the railway builders. This was the beginning of the development of the great National Park system of Canada, for soon afterwards an area of 10 square miles around the springs was set aside to preserve it from exploitation and to keep it available for tourists. The surrounding scenery was magnificent, with great snow-capped mountain peaks, deep valleys, swiftly flowing rivers and placid lakes; and travellers over the

newly-constructed railway line were so greatly impressed that the Canadian Government was urged to create a much larger National Park in the area. This led to an Act of Parliament establishing what was then known as the Rocky Mountains National Park, with an area of 260 square miles. To-day this has been expanded to cover 2,585 square miles, and it is now known as the Banff National Park, from the name of the town that has sprung up near the springs.

It is easy to reach the scenic beauties of the Park by rail or road, and to enjoy the clear and invigorating atmosphere of this marvellous mountain region. The C.P.R. main line passes through the Park, in which the two main stations are that at Banff itself and one at Lake Louise 40 miles to the west, one of the most beautiful stretches of water in the world. The lake is set in a great amphitheatre of lofty mountains, and its surface



The Administrative Gardens at Banff National Park, with Cascade Mountain in the background.

reflects forest slopes and snow-capped peaks. At the western end of the lake is Mount Victoria, the sides of which are draped by an immense glacier that adds wonderfully to the impression that the entire scene creates in the minds of those who have the privilege of seeing it. Not many miles away is Moraine Lake, in a valley that rejoices in the picturesque name of the Valley of the Ten Peaks. This stretch of water, with its sapphire and emerald hues, is even more closely hemmed in by massive peaks than is Lake Louise.

Almost every corner of the Park is now within reach of motorists. The Trans-Canada Highway, Canadian road No. 1,



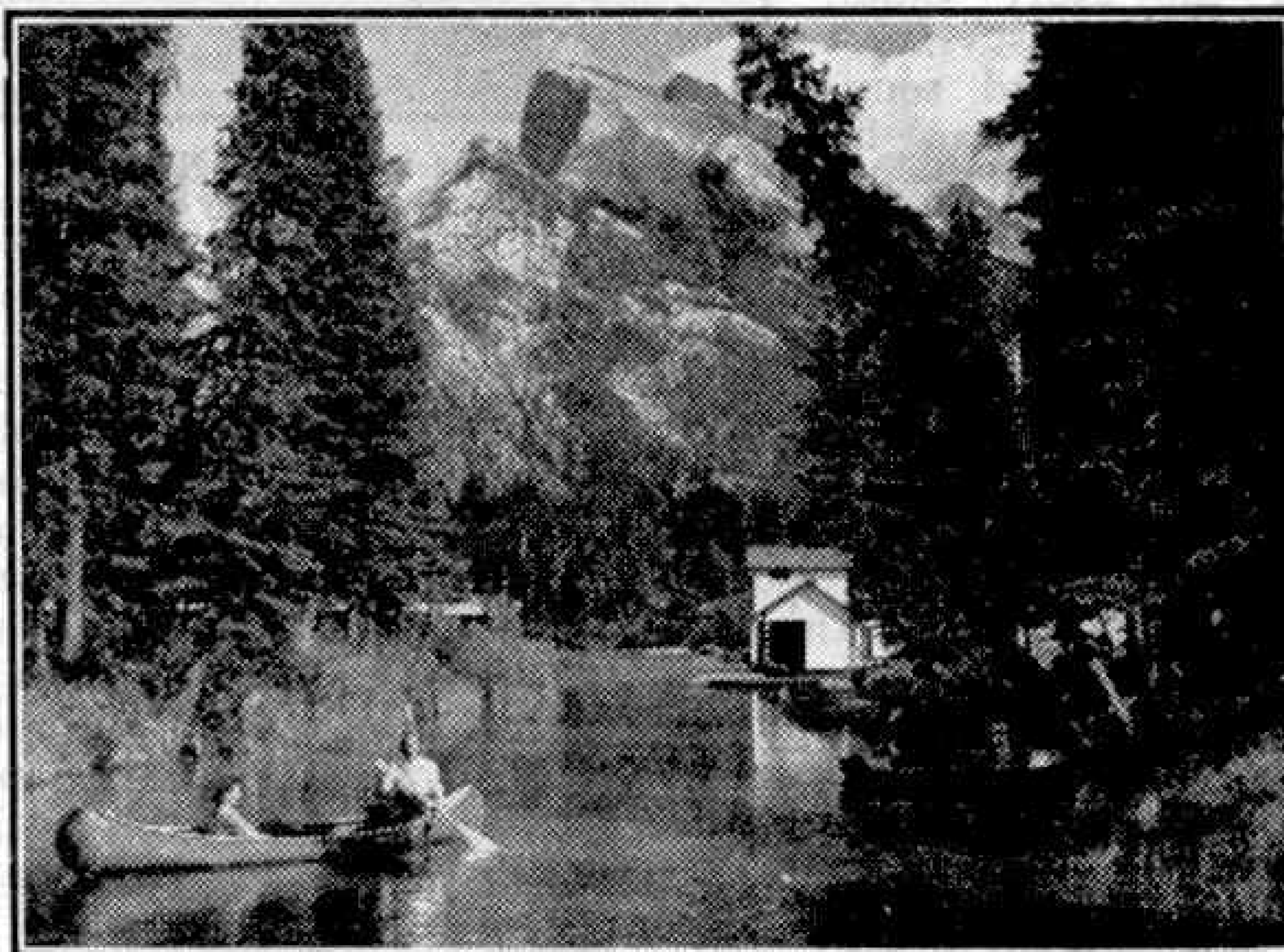
Trail riding in the Rockies. The illustrations to this article are reproduced by courtesy of the National Film Board, Canada.

crosses from east to west on its way to British Columbia and Vancouver, and northward from a junction with it near Lake Louise stretches the Banff-Jasper Highway. This magnificent road carries the motorist through the northern section of the Park and onward through the adjoining Jasper National Park, another great playground and game sanctuary of majestic peaks, ice fields and lakes. The area covered by the Jasper National Park is 4,200 square miles, and it is the largest of Canada's National Parks with the exception of the Wood Buffalo National Park, an immense region of 17,300 square miles of forests and plains on the shores of the Great Slave Lake, far to the north.

The Banff-Jasper Highway was opened for travel in 1940, and gives easy access to primitive regions that formerly could only be reached by trail riding or on foot. It runs along the general line of the Rockies, crossing Bow Pass at a height of 6,785 ft. and entering Jasper National Park through Sunwapta Pass, the summit of which, 6,675 ft. high, is reached by means of long switchbacks through rock cuttings and along the sides of deep valleys. Soon the motorist finds himself in a sea of mountains, great snow-capped peaks festooned with glaciers flowing from the great Columbia icefield, which is estimated to have an area of 150 square miles. The many glaciers thrusting down the slopes of the icefield start streams of water that eventually become great rivers flowing north, east and west into the Arctic, Atlantic and Pacific Oceans.

At Banff itself there are scenic gardens, and waterfalls and mountains can be visited by means of short drives and by trail riding. Trail riding indeed is one of the most enjoyable ways of seeing the wonderful scenery of the Park, and in it nearly a thousand miles of well-kept trails lead to new adventures. Camping facilities are available, and every year there are special four-day outings arranged under the supervision of the Trail Riders of the Canadian Rockies. Canoeing and fishing and winter sports and games of all kinds also can be enjoyed to the full.

One of the purposes of the establishment of National Parks was the preservation of wild life, and many interesting living creatures flourish in the Banff National Park. Black and grizzly bear, elk, cougar and coyote are numerous, and the picturesque Rocky Mountain or bighorn sheep and the Rocky Mountain goat also can be seen.



A quiet stretch for canoeing in Banff National Park under the shadow of Mount Rundle.

# Water for a Desert

## Reclamation of the Negev

By Harold J. Shepstone, F.R.G.S.

**I**N the colonization of Palestine the Jews have shown what can be done in reclaiming what was regarded as waste and barren land, unfit for cultivation. The story of their rural settlements, of which there are now about 300, is a stirring battle against fearful odds — malaria, deadly swamps, stony soil and drought. In the earlier days of this reclamation work hundreds of Jews gave their lives. They succumbed to malaria, but others pluckily took their places and struggled on till the deadly menace was conquered. To-day the very latest scientific methods are employed in surmounting these obstacles.

The latest reclamation scheme of the Jew is a very ambitious one, opening up great possibilities. It is the irrigation of the Negev, the "Empty Quarter" as it were of the Holy Land. If this vast tract of desert and semi-desert land can be reclaimed and made fertile, as it must have been at one time, it will form one of the most daring conservation schemes ever attempted.

Negev is a Hebrew word meaning "The Dry." It is applied vaguely to the country lying to the south of Beersheba, an immense territory 3,000,000 acres in extent, almost half the area of Mandated Palestine. It is a great elongated triangle, bounded on the north by a line drawn from Gaza to the Dead Sea, on the west by the Mediterranean coast and the Sinai frontier, which it follows to the Gulf of Akaba, and on the east by the Transjordan boundary.

In the whole of this immense area there are less than 80,000 Bedouins, representing

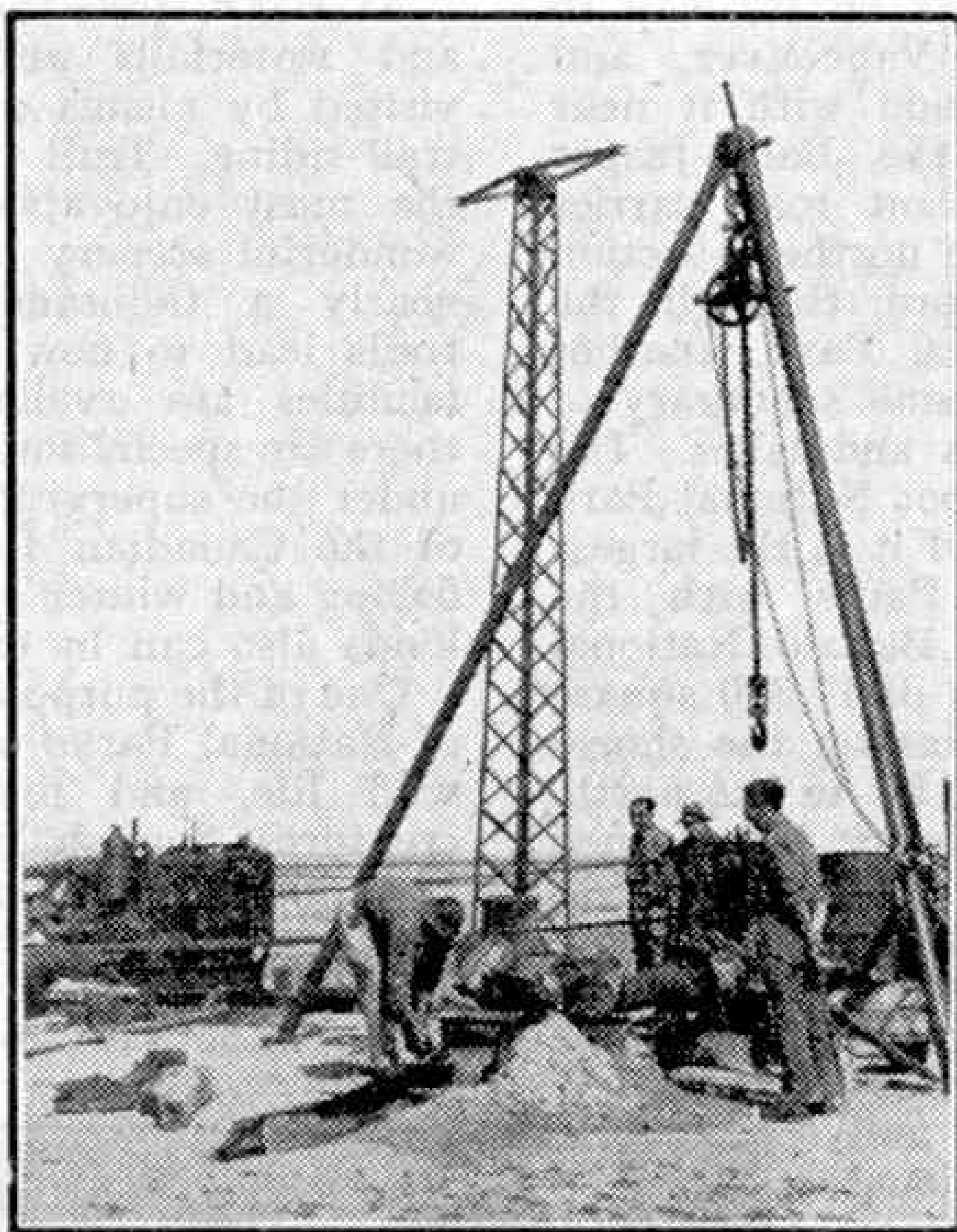
many different tribes. While a number of them cultivate a little barley and wheat and other crops, the majority lead a purely nomadic existence, moving with their flocks of sheep and goats and camels from pasturage to pasturage as occasion necessitates. In a very dry summer they trek to Sinai if that region has not been similarly affected by drought, but

far more of them find greater attraction in Judea, Samaria or even farther north. This Bedouin migration in settled areas invariably exercises a disturbing effect on the labour market and on conditions of security.

With the exception of a few scattered cultivable areas in certain of the wadis and in the neighbourhood of springs, the Negev is entirely desert. It is a desolate, barren and Sun-scorched land. The average yearly rainfall diminishes from about 14 in. at Gaza to 8 in. at Beersheba, and reaches a minimum of 3 in. at Kurnub, a ruined city lying

to the south-east of the Dead Sea.

There is no archaeological evidence to prove that the Negev was populated in early Bible times, as was the fertile crescent farther north. In the ruins of six cities, and of numerous smaller places, dams, cisterns, terraces and works for the conservation of soil and water, however, we find evidence that a highly developed and energetic people flourished in the Negev in post-Biblical times. None of the terrace walls appears to have been built earlier than the Greek period, and the prosperity of the Negev reached its peak under the Byzantine Emperor Justinian in the 6th century. According to



A drilling machine at work at Nir Am, in the Negev. Extensive borings were necessary to find water supplies.

archæological evidence, civilization in the Negev began with the Nabateans, a people of Arab origin who settled there in the later centuries of Roman rule.

The causes of the decline and abandonment of these cities and settlements have aroused much speculation. Whatever the reason it is clear from the extensive character of their water and soil conservation works that the country must have supported a large population. Take those at Kurnub as an example. This was a walled city with a population of about 10,000, a flourishing Christian city that enjoyed an existence of possibly a thousand years. Just above the town, spanning the gorge, stood the main dam, or reservoir, built of well-cut stone. It is 38 ft. high, 20 ft. through at the crest, and 75 ft. in length. Within the gorge above this dam are the buried walls of three other dams. They are now in ruins and silted up. The conservation work also included elaborate terracing.

Here then is proof that at one time the Negev was extensively cultivated. With the cultivation of the soil went several industries such as weaving and the like. Then down at the extreme south-eastern corner of the territory is Solomon's old seaport on the Gulf of Akaba, which flows into the Red Sea. To-day it is but a small fishing village. Yet in the time of the Romans it was a very busy port, for here was landed all the merchandise from the Far East.

During the past two years the Jews have established 20 settlements in the Negev. These lie in the northern section of the territory, to the east of Gaza and stretching south-eastward from Beersheba. It is not an attempt to reclaim the whole of the Negev. That would be a colossal undertaking calling for the expenditure of vast sums.



The water pipe line approaching a settlement in the Negev. Arab neighbours took a keen interest in the work.

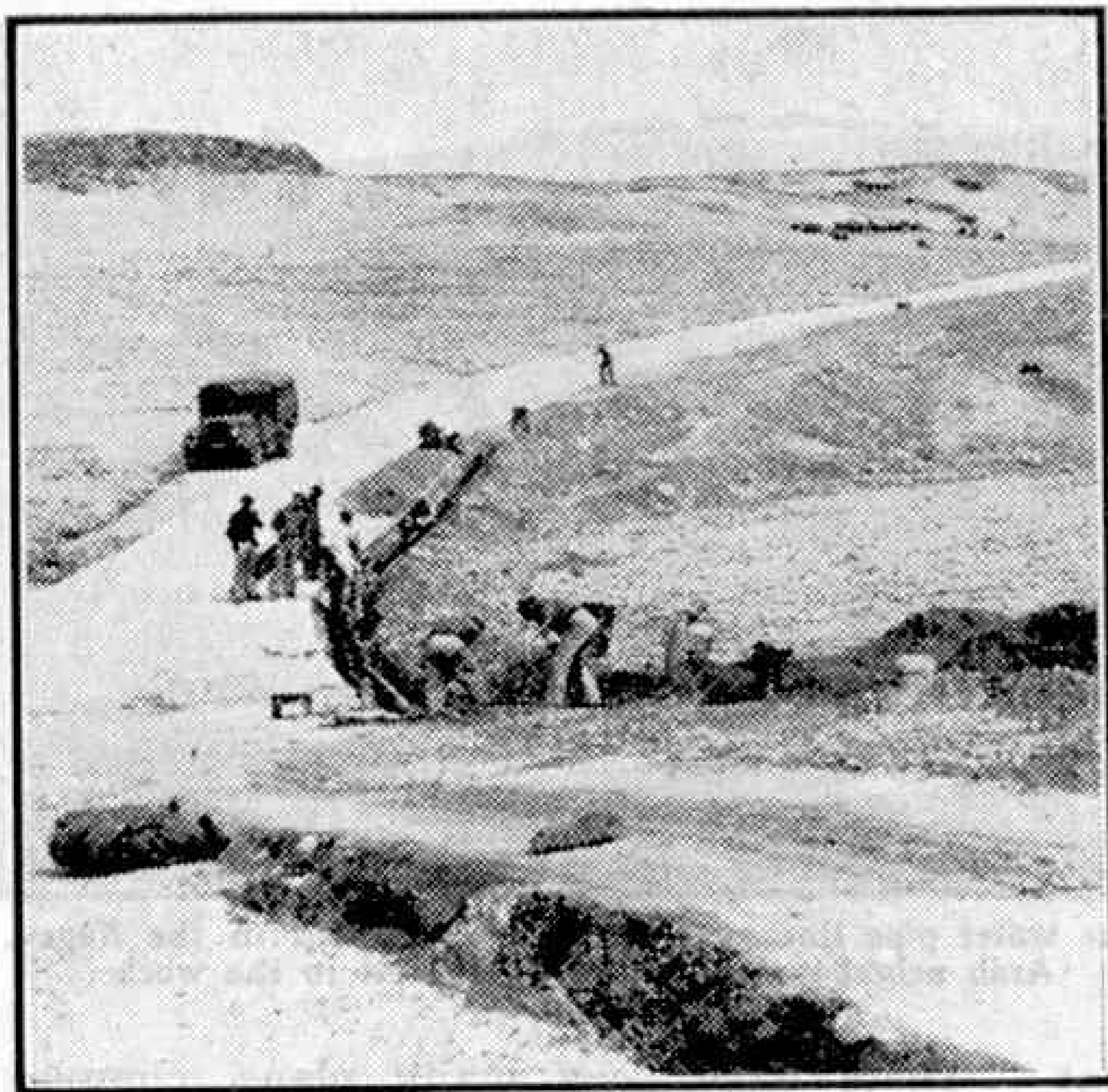
There have been many plans, complex and far-reaching, put forward by Palestine experts and others for the reclamation of the Negev. The Jews are the first, however, to attempt the task. What they are doing is carrying water to their settlements so that they can be established permanently. Now that a start has been made there is every reason to believe that this conservation work in Palestine's dry area will be continued.

The Jewish scheme provides for the conveyance of water in pipe lines from areas with an abundance of underground resources to the arid regions. Wells were sunk at the settlements of Nir Am, Gevar Am and Dorot, which are to the north of Gaza, and the plentiful flow of water obtained is to be carried by 6 in. pipes over a distance of many miles as far as Revivim, the most southerly Jewish village in Palestine.

The central pumping-station which has been set up at Nir Am will serve three areas, the eastern settlements, the western settlements and the Gevulot area. A chain



Water brought to the surface by boring at Nir Am.



Laying the pipe line alongside a desert road in the Negev.

of electrically-operated pumping stations will be installed for each area. The eastern pipe line runs from Nir Am, passing through Dorot to the settlements of Mishmar Hamegev, Chatzerim and Alumin and ending at Revivim. The actual length of the line is 50 miles, but 80 miles of pipes will be laid, as for most of its length the line will be double. An auxiliary pumping station will be set up at Dorot. The western or Beerot Yitzchak line also will start at Nir Am and will continue as far as Tekuma, with branches leading to Beerot Yitzchak and Beeri. Its length is 18 miles. The Gevulot area is in the south-west, approaching the Egyptian frontier. This line will start from Nir Am and pass through Tekuma to Gevulot. Its length is 29 miles. From Gevulot the line will branch out in two directions, to Mivtachim and Nirim in the west, and to Shorashim and Urim in the east. An auxiliary pumping station will be set up at Gevulot to send the water along the two branch lines.

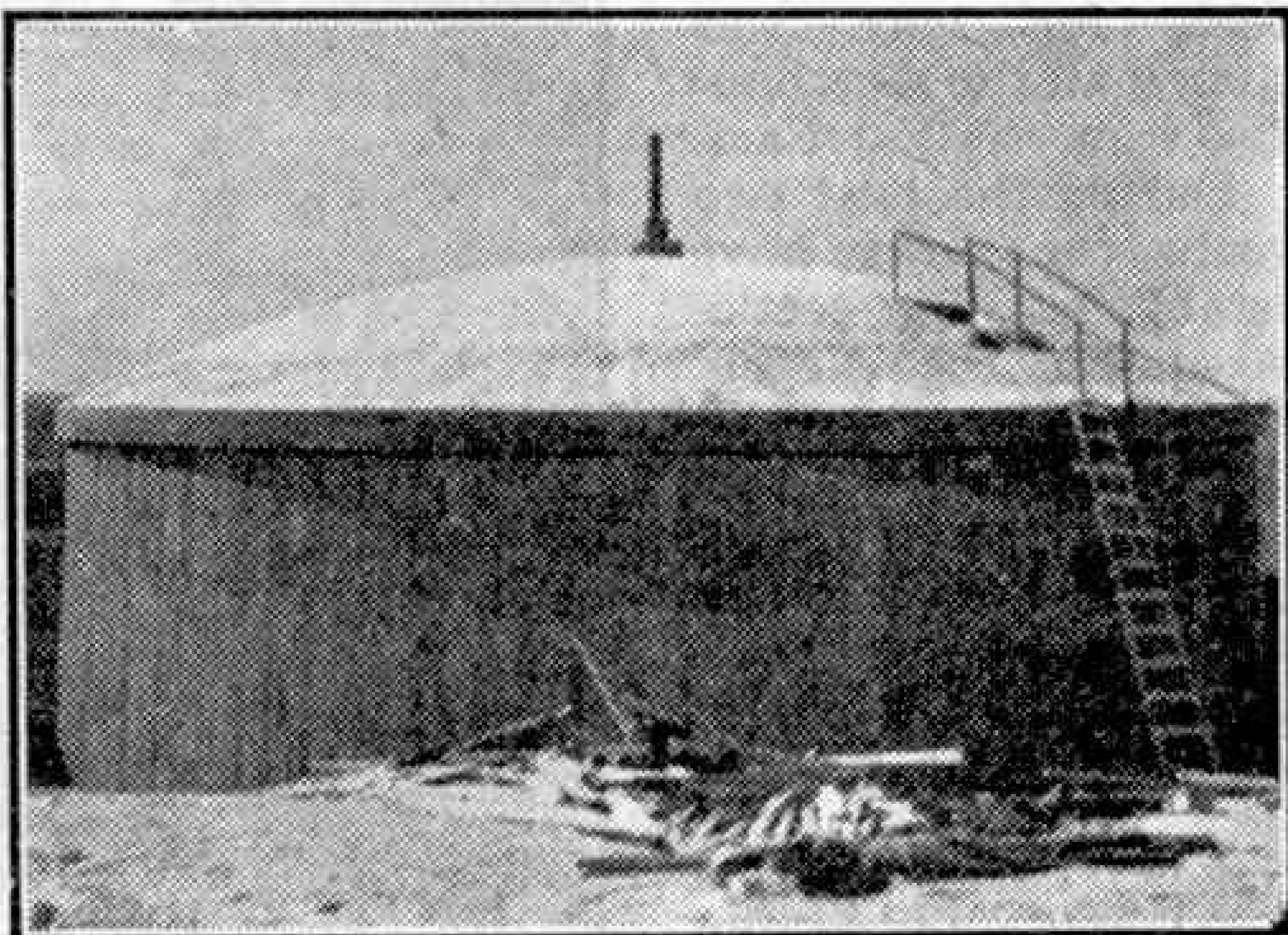
The overall length of the line is 109 miles and the total length of the pipes to be laid is 162 miles. The pipes came from Britain. They are from the stocks of emergency piping produced in large quantities during the "Blitz" for the quick replacement of gas pipes and water mains destroyed by air raids. Here and there the pipe line passes through Arab villages. Special arrangements

had to be made with them, which include both payment of cash and the supply of water to the owners. The Arabs have welcomed the coming of the pipe-line, as it has meant abundant water for cattle and crops.

In order to ensure effective utilisation of the water, several reservoirs are to be constructed. Reservoirs with a capacity of 1,100 cu.m. or about 245,000 gallons each are to be built at Nir Am, Dorot and Gevulot, and smaller ones at the other settlements. Generally the flow will be at the rate of more than 44,000 gallons an hour, and the water will be distributed to the settlement in varying amounts according to the needs. The total amount of water carried over the Negev network will be over 35,000,000 cu. ft. a year. It will provide water for domestic and farmyard needs, and also for irrigating small areas for the cultivation of forage crops,

vegetables and plantations. The total area to be irrigated will be between 2,000 and 3,000 dunams—a dunam is one-fourth of an acre. The whole project will cost between £300,000 and £400,000, and this is being borne entirely by the Jews. They declare that it should be possible within a short time to supply water to the Negev at the rate of 525 million cu. ft. a year. This would suffice to irrigate an area of 7,500 acres, enabling 1,500 holdings of 5 acres each to be established.

It may be added that the Negev, with the exception of a narrow strip along the Mediterranean coast, is one of the areas of Palestine which U.N.O. have awarded to the Jews.



One of the concrete tanks at Nir Am into which water is pumped. It holds nearly 250,000 gallons.

# Britain's New Height Record

By John W. R. Taylor

ON 23rd March last, John Cunningham, chief test pilot of the de Havilland Aircraft Company, walked out to a silver "Vampire" parked on the tarmac at Hatfield. A few minutes later the little jet fighter roared into the air and began a steep climb towards the clouds. It was a familiar scene, for this particular "Vampire" is used as a flying test-bed for the powerful new "Ghost" engine, four of which will power the swept-wing D.H. 106 transatlantic air liner.

But this time there was a difference, for when he landed 47 min. later Cunningham had set up a new International Altitude Record with a magnificent climb to 59,492 ft. This exceeded by 3,443 ft. the old record set up in 1938 by Lt. Col. Mario Pezzi of Italy in a Caproni biplane.

An improvement of 3,443 ft. after ten years does not sound a lot, but it represents a tremendous achievement. The 1938 record was set up by a specially-built "freak" aircraft flown by a pilot in a cumbersome pressure suit. For his flight Cunningham wore simple flying overalls in the pressurised cockpit of what is basically a standard jet fighter, similar to those in service with six of the world's air forces.

Apart from some minor internal modifications, the only non-standard features of the record-breaking "Vampire" are its special engine, extension by 4 ft. of each wing tip to improve handling qualities at high altitude, and a metal cockpit cover

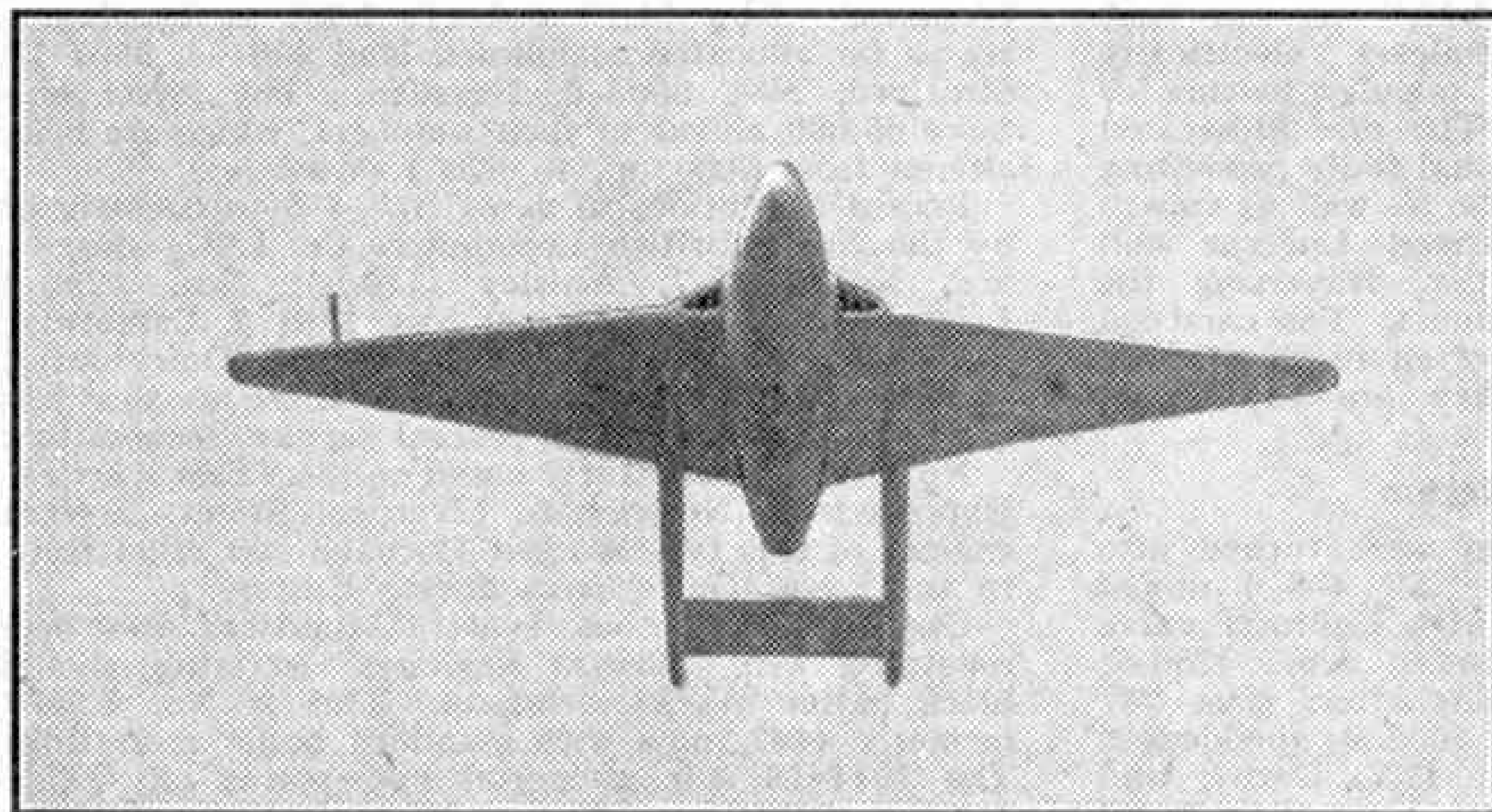


John Cunningham, de Havilland chief test pilot, who set up the new height record. Photographs by courtesy of the de Havilland Enterprise.

instead of the normal Perspex hood. The weight saved by removing the "Vampire's" paint added some 50 ft. to the height record.

Outstanding feature of the flight was that the aircraft's superb handling qualities were unimpaired at extreme altitude—a significant fact as combat ceilings become ever higher. The view from 59,000 ft. was spoiled by cloud, but Cunningham reported that at one stage he saw almost the whole of the South Coast laid out below him. The sky is, of course, black at that height, as there are no dust particles to reflect light. Consequently, except in direct sunlight, the cockpit was in darkness.

As a Group Captain during the war, John Cunningham was one of the R.A.F.'s top-scoring night fighter pilots, with a "bag" of 20 enemy aircraft, which earned him the nickname "Cat's-eyes," a D.S.O. and 2 bars, D.F.C. and bar. His peacetime achievements are no less outstanding, and he may well follow up this new height record with some spectacular speed flying in the little swept-wing D.H. 108 research aircraft.



The D.H. "Vampire" just after taking off on the record flight.

# Railway Notes

By R. A. H. Weight

## National and Scottish News

Locomotive exchange trials and unusual transfers are creating much interest. L.M.S. engines working on unaccustomed routes recently included three "2P" 4-4-0s, Nos. 603, 622, 650, on the former G.N. of S. Section, L.N.E.R., where there is also a Caledonian type 0-4-4T, No. 15159. Two new class "4" 2-6-4Ts numbered 2198-9 are undergoing extensive trials on the Southern Region at the time of writing, based on Tunbridge Wells West, Dover and elsewhere. Renumbering is proceeding fairly quickly. Several experimentally painted locomotives and coaches have been noted on official exhibition.

Restored or new long-distance expresses to run during the coming summer include the "*Thanet Belle*" between London and the Kent Coast, and the "*Queen of Scots*" between King's Cross and Glasgow, both composed entirely of Pullman cars. There will be a "*South Yorkshireman*" to and from Marylebone, with other improvements to which we hope to refer next month.

## Across the Irish Sea

Five new 3-cyl. simple 4-4-0 express locomotives numbered 206-10, named after rivers or lochs, have been supplied by Messrs. Beyer, Peacock and Co. Ltd. for the G.N.R. (I). Their previous five large 4-4-0s were, and are, 3-cyl. compounds. Six main line diesel-electric locomotives are under construction at Barrow for the C.I.E. (Eire). No. 1000, the first of five smaller such machines intended mainly for shunting, successfully ran right through from Dublin to Cork, 165½ miles, on 21st March, with a trial passenger train weighing nearly 400 tons.

## The Swiss "Red Arrow"

References have been made in recent articles on Swiss railway operation published in the "*M.M.*" to the fast, light-weight single or twin railcars, electrically powered as usual, which are a popular feature of certain main or scenic routes. The one illustrated this month runs over an international route presenting high altitudes and steep gradients, as well as superb mountain and lake vistas, between Lucerne and Lugano, near the Italian frontier, traversing the famous St. Gotthard pass and tunnel. The cars can be driven from either end, and often reach a speed of about 75 m.p.h., though they are capable of much more.

## London Midland Region

The following new locomotives were turned into traffic during March last: class "5" 4-6-0 mixed traffic of modified appearance, with Caprotti valve gear and roller bearing axle boxes, Nos. 4750-2, stationed at 9A, Longsight, Manchester; class "4" latest design 2-6-0 freight Nos. 3008-9, shedded at 12D, Workington; No. 3010, at 17A, Derby; and class "4" 2-6-4 passenger tanks Nos. 2196-7, at 30A, Corkerhill, Glasgow. Nos. 2198-9 of the last

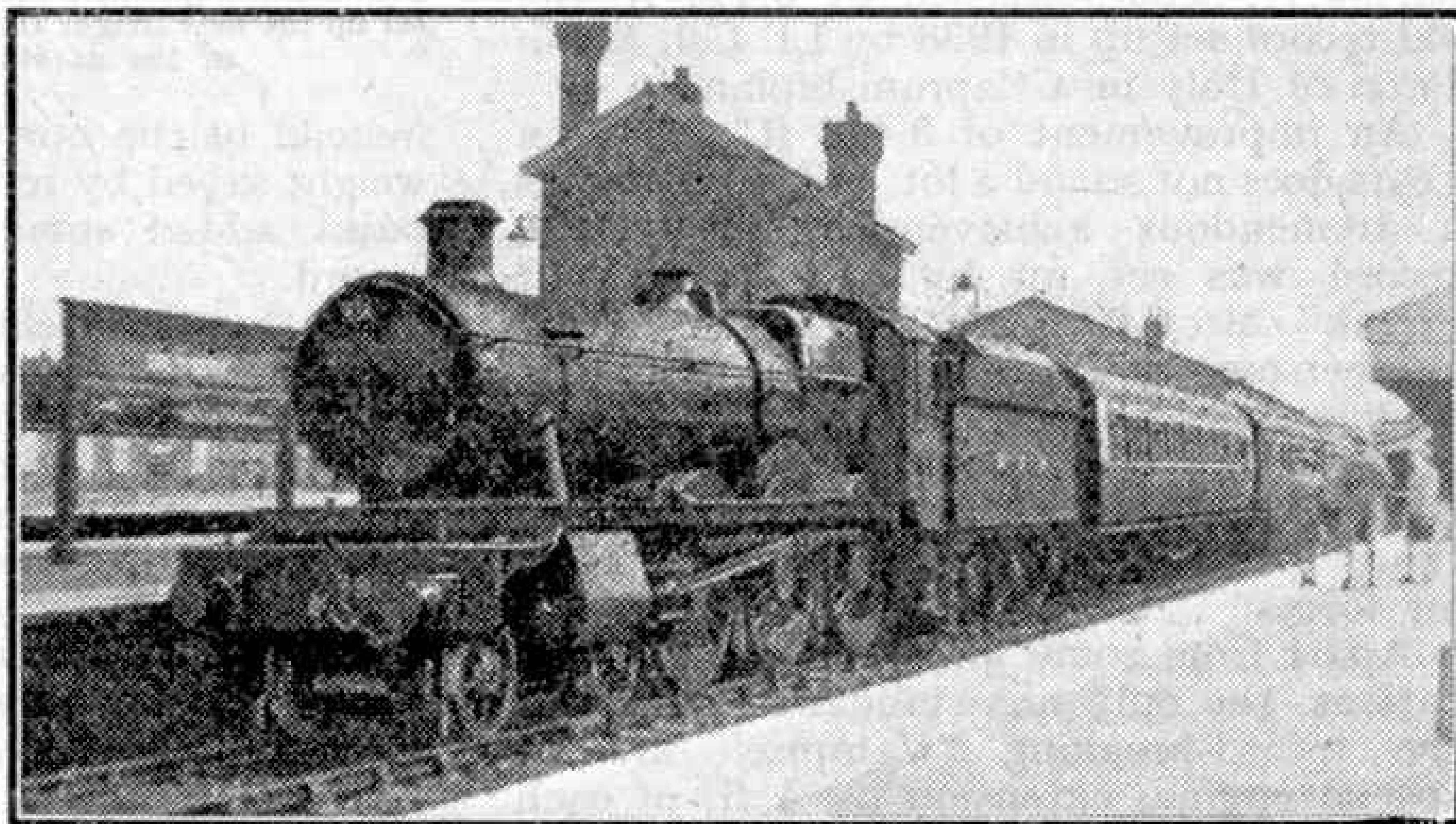
named class are at present on loan to the Southern Region. An additional 0-6-0 diesel-electric shunter working from 21A shed, Saltley, is No. 7131.

By the withdrawal of No. 10617, the very small 0-4-0T type, built for working permanently attached to a bogie coach as a push-and-pull steam railcar unit, becomes extinct. She was the last of 18 similar units built for the Lancashire and Yorkshire Railway between 1906 and 1911 for local or branch line working where traffic was light. Another unusual little engine, the sole remaining 2-4-0T lately numbered 6428, has become No. 26428 L.M.S. for the time being.

Some enterprising running was recorded behind "6P" reboilered "Patriot" 4-6-0 No. 5531 "*Sir Frederick Harrison*," of Bushbury Shed, on the 8.55 a.m. Euston-Birmingham express. Permanent way work in hand caused several slowings in the course of the 45½ mile start-to-stop run between Watford and Blisworth. Before the first of these 80 m.p.h. was attained beyond Cheddington, then at greatly reduced speed Bletchley, 29½ miles, was passed in 31½ min., followed by bright going past Wolverton until the next slack which prevented the smart 50 min. timing being kept. The net time, allowing for the delays, was no more than 48½ min. A "Duchess" 4-6-2 recently ran from Rugby to Euston, 82½ miles, in 78 min.

## Eastern and Northern Regions

Like No. 525 illustrated opposite, "A2" 4-6-2 No. 60532 is stationed at York, being followed by Nos. 60533-4, "*Happy Knight*" and "*Irish*



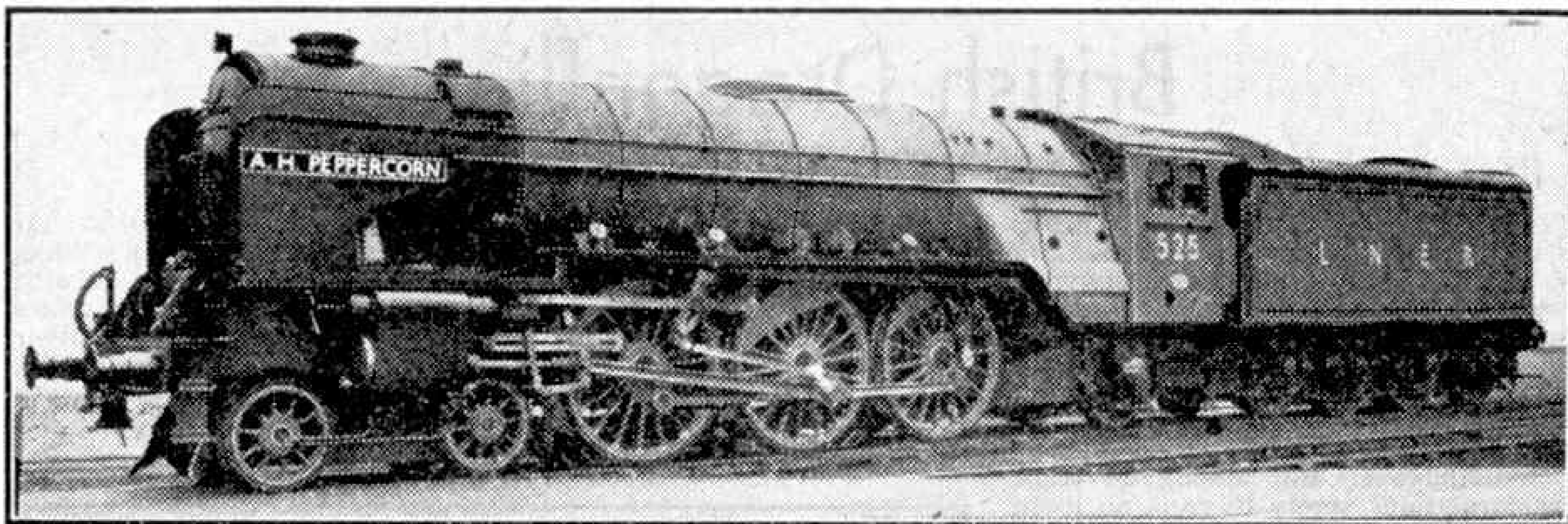
An oil burning "Hall" class 4-6-0 No. 3902 "Northwick Hall" on a Portsmouth-Cardiff train at Salisbury. Photograph by G. O. P. Pearce.

*Elegance.* New "L1" 2-6-4Ts built at Darlington are so far allocated as follows: Nos. 9001-4, 9007-12, Stratford; Nos. 9005-6, Neasden. The latest ones have 60,000 added to their numbers, which are being altered from 9000 up, to 67001 onwards.

Recent allocations of new "B1" 4-6-0s constructed by the North British Locomotive Co. Ltd., Glasgow, are: No. 1295-7, Ardsley (Leeds); Nos. 1298-9, Leicester; No. 1300, March; Nos. 1301-2, Cambridge; No. 1303, Darlington; Nos. 61304-6, Hull (Dairycoates); and Nos. 61307-8, Kittybrewster. There are thus now more than 300 of these general service locomotives.

No. 61052 was recently noted on the "*East Anglian*" Express from Norwich to Liverpool Street. Several engines of this type worked 12-coach fast relief trains to and from King's Cross during Easter.

One of the famous Ivatt "Atlantics" has been repainted with "*British Railways*" lettering, though black, after Works overhaul. This is No. E2877, formerly 4447, now with standard boiler mountings. The 1914-18 war memorial nameplates off G.C.R. 4-cyl. 4-6-0 "Valour," withdrawn for scrapping, are to be preserved and displayed, one in York Railway



"A. H. Peppercorn," class A2, showing the latest development of the L.N.E.R. general-service "Pacific" design. The altered front-end layout as compared to the Thompson design gives the engine a compact, bold appearance. British Railways Official Photograph.

Museum and the other in Gorton Works. As No. 1165, later 6165, "*Valour*" was one of the "B3" locomotives which regularly hauled the Pullman expresses between King's Cross and Leeds between 1923 and 1926. Her final L.N.E.R. number was 1496. More recently she had worked many main line and cross-country services of the Great Central Section.

A log of an Edinburgh-Newcastle run by Thompson "A2/3" 4-6-2 No. 512 "*Steady Aim*" shows that with a heavy train weighing over 500 tons time was well in hand on a rather easier Sunday schedule. Following a maximum speed of 70 m.p.h. along the first stage of the coast line there was a dead stop for track repair work, yet the arrival at Dunbar, 29½ miles, was practically punctual. On restarting, the stiff Cockburnspath bank was well tackled with a minimum of 30 m.p.h. at the top, followed by speeds round about 64-65 to the Border, so Berwick stop was reached in the smart time of 36½ min. from Dunbar, nearly 5 min. early. A good but uneventful run on to Newcastle brought this midday Scotsman into the Tyneside Central station with a similar margin on the right side.

With good weather, and the withdrawal of long-standing speed restrictions due to track repairs, there has been a considerable improvement in time-keeping at the Southern end of the East Coast route; a number of early arrivals of expresses at King's Cross to the extent of as much as 7 min. have been reported.

We have received informative details of the performance of new "A2 Pacific" No. 525 "*A. H. Peppercorn*" when hauling the Hull restaurant-car express from Doncaster to King's Cross on two days in February last. With an 11-coach train weighing 375 tons full, the great engine was worked very easily and on the first run was before time nearly all the way. A slight slowing was necessitated on the 1 in 178 rise after Retford, but high speed was attained on the subsequent descent to the Trent Valley, a maximum of 80 m.p.h. being reached near Carlton with the regulator no more than half open and steam being admitted to the cylinders to no greater extent than one quarter of the piston stroke. The arrival at Peterborough after a very gentle descent of Stoke bank was 2 min. early. Approximately the same time was in hand at King's Cross after a maximum speed of 71 m.p.h. and a slack to 27 m.p.h. at St. Neots. On the second run, the start was late and several dead stops as well as slowings occurred on account of adverse signals, but the engine recovered

quite 10 min. in all, presenting marked feats of acceleration but observing present speed restrictions, indicating that she could have hauled a much heavier train, as will indeed be necessary on occasion.

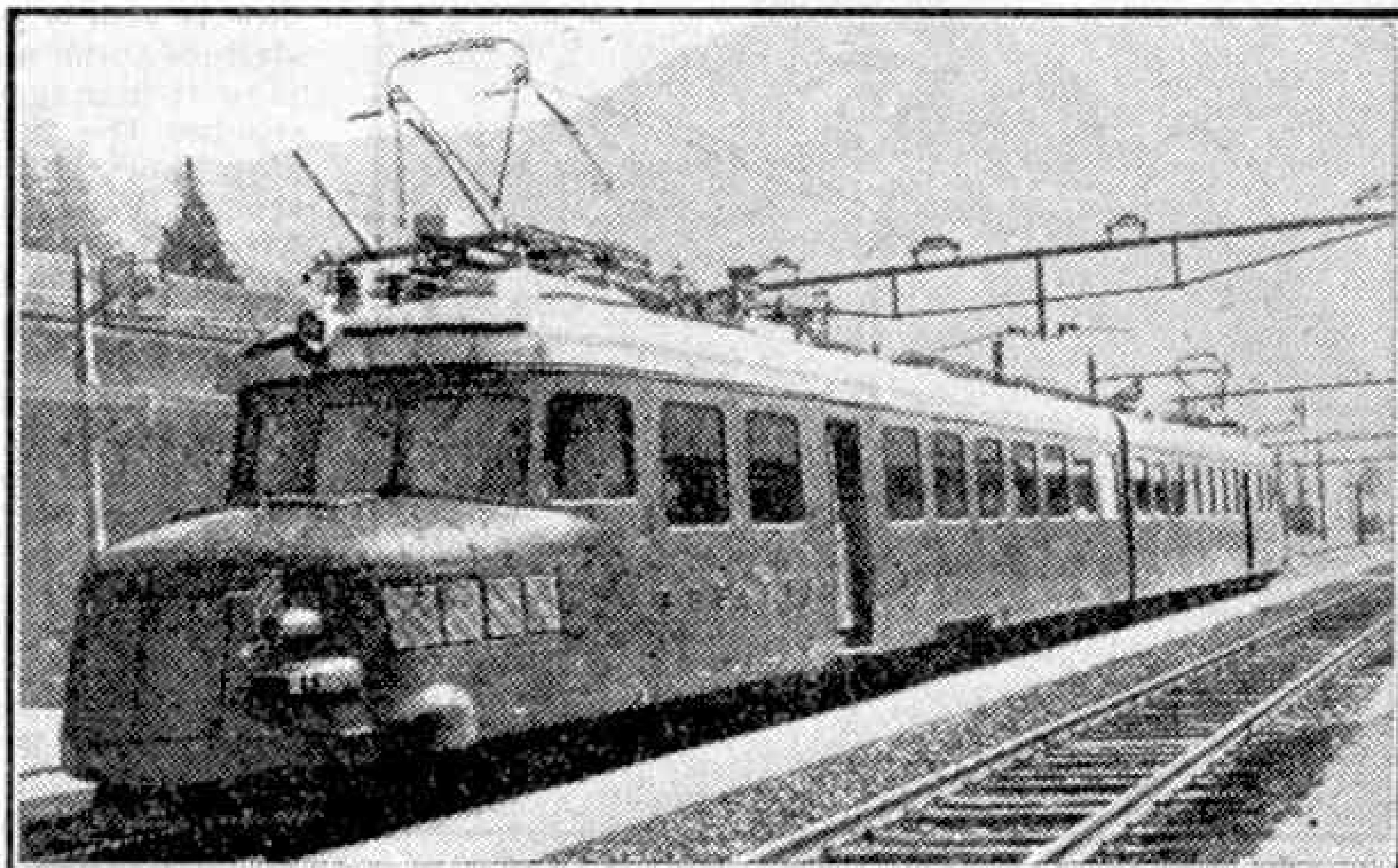
#### Western Region Locomotive News

Modified "Hall" 4-6-0s built at Swindon have been placed in service and stationed as follows: No. 6986 "*Rydal Hall*," Tyseley; No. 6987 "*Sherrington Hall*," Gloucester; No. 6988 "*Swithland Hall*," Weymouth; and No. 6989 "*Wightwick Hall*," Hereford. More "Castle" express engines are under construction as well as diesel shunters for work at Paddington, Banbury, etc., numbered 15101 up. Diesel-electric No. 2 has become 15100. Nameplates affixed are No. 1014, "*County of Glamorgan*," and No. 6934, "*Beachamwell Hall*." The latest series of "Castle" class locomotives with increased superheat and well maintained, are performing excellent work over the steep gradients of South Devon, and elsewhere.

#### Southern Tidings.

"Merchant Navy Pacifics" Nos. 35005 and 35009, previously 21C 5 and 9, were recently fitted with American type mechanical stokers. New "Battle of Britain" light 4-6-2s are coming into service, numbered 34071 up; these will probably carry as names the numbers of R.A.F. Squadrons that shared the grim fighting of 1940. No. S21C 148 has been ceremonially named "*Crediton*" (not "*Westward Ho!*").

Several very fine runs with the 10-car "*Bournemouth Belle*" by "Merchant Navy" engines are reported over the 79½ miles between Waterloo and Southampton, the times recorded being from 80½ to 84 min.



A two-car lightweight "Red Arrow" electric high-speed train of the Swiss Federal Railways. Photograph by D. L. Waller, London W.3.

# British Dragonflies

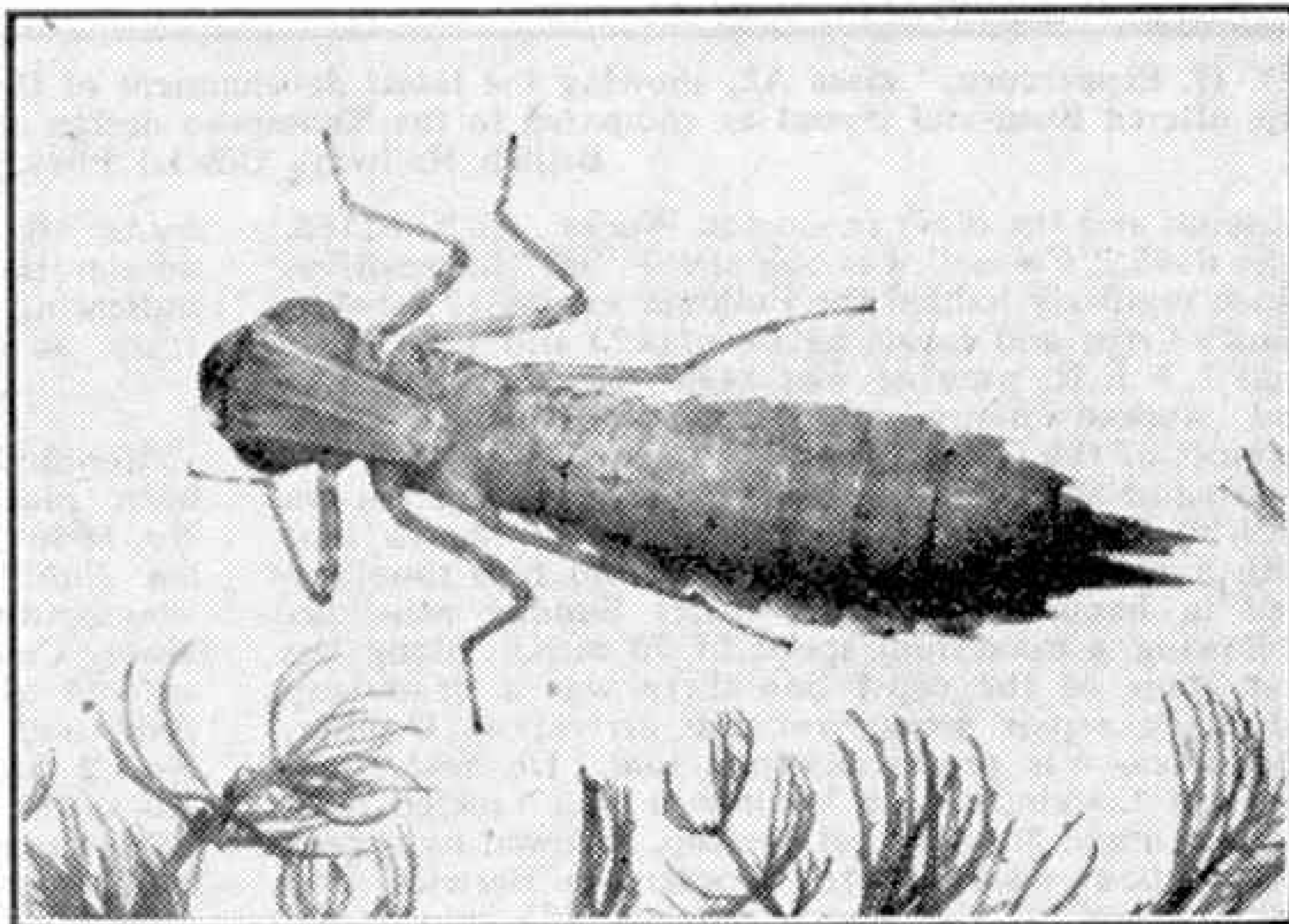
By L. Hugh Newman, F.R.E.S.

**S**TRANGE things happen in the Insect World. The drab or hairy caterpillar becomes a colourful butterfly; the soft white grub, hiding underground for protection, turns into an armour-plated beetle strong enough to face its enemies unafraid; or a dry little egg that looks like a miniature beer barrel opens up and out crawls an ungainly young stick insect with legs and body of such a size that it seems incredible that they could ever have been folded into so small a circumference. But among all these transformations surely there is no more startling change than when a slow repulsive "mud crawler" turns into an insect so swift, beautiful and iridescent as a dragonfly.

In creatures of higher orders, babyhood is generally a period of more charm and agility than in later life, but with insects the reverse is true. There is nothing in the least attractive about an immature dragonfly, and "nymph" is a very inappropriate name for a creature that might indeed claim kinship with the legendary dragons, ugly and ferocious, that hid in murky darkness thence to spring upon their unsuspecting prey. With their brown and greyish-green colouring the young dragonflies are well hidden in the slime and mud, or among the weeds in ponds and pools, where they spend as long as two years trying to appease their ever-increasing hunger. Only at the time of skin changing does this voracious insect stop eating for a few days. It is then that the old brown skin splits and the young dragon emerges, bright green, limp and exhausted. For a day or two it clings to the stem of a water weed, quite unnoticed in its protective garb, and then, as its new coat darkens and hardens, its interest in food returns!

With each change of skin the dragonfly's need for food is greater, and it looks for victims that are larger and more satisfying. Its big protruding eyes

notice every movement in the water, but far more remarkable than its eyes is its lower lip. When not in use this is tucked neatly under the chin with two curved claws at its end held in front of the face like a mask. Normally the young dragon is rather sluggish, but this hinged mask can be flung out at great speed, to catch and hold the unfortunate grub or tadpole that had thought itself to be well out of reach.

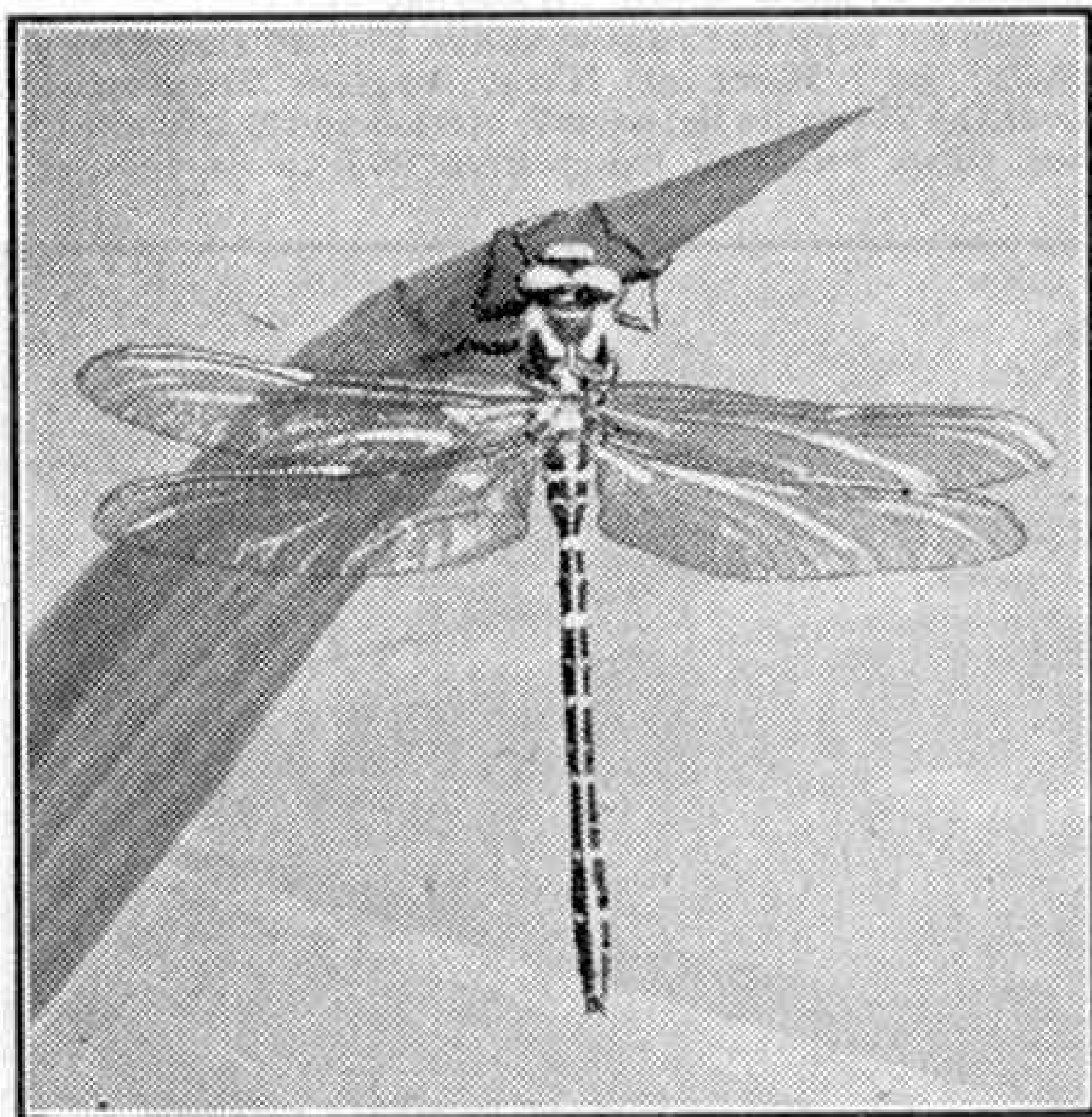


Underside view of nymph of the Emperor Dragonfly, showing the mask that is used to catch grubs and tadpoles.

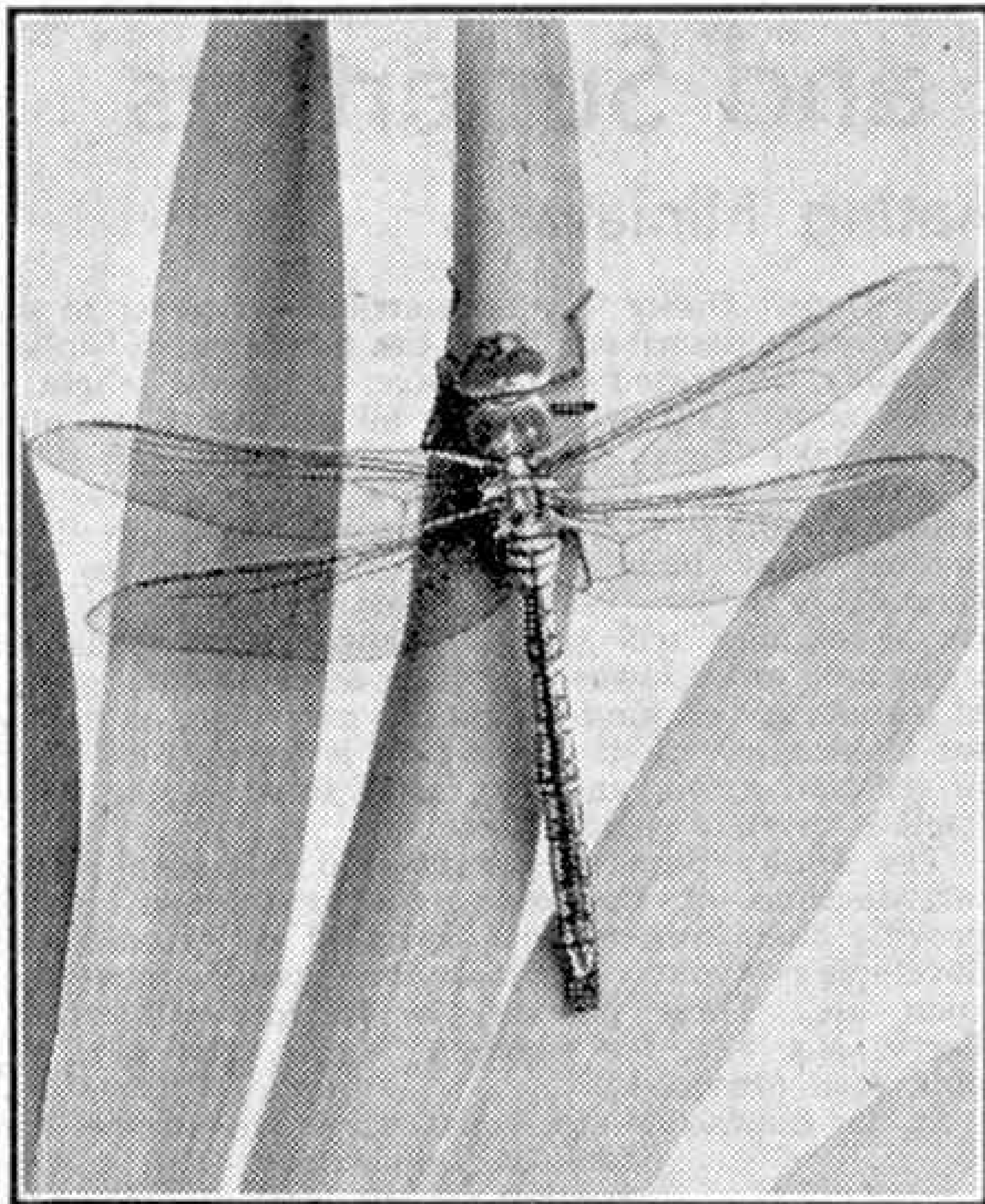
But if there is real need for hurry, even the slowest nymph can put on speed. On these occasions the immature dragonfly dispenses with the use of its legs and relies instead on a form of jet propulsion. The hind body terminates in several wedge-shaped tails that surround the entrance to a cavity that acts as a breathing apparatus. Fresh water is pumped rhythmically in and out, and when speedy movement is essential the nymph ejects this breathing water under pressure and is propelled forward by force.

When the young dragon is full grown, its instinctive desire to hide in mud and semi-darkness is replaced by a sudden longing for light and air. While the day is still young it begins to climb slowly up the stem of some water plant that rises above the surface. How it manages always to select a stem that actually reaches the light instead of one of the many that stop short below the surface it is difficult to understand. Perhaps the movement of the plant in the wind acts as a guide. At any rate the nymph climbs steadily upward until it reaches a point a few inches above the water, and then it locks its six slender legs around the stem and sits and rests awhile.

In its new environment the nymph's skin soon becomes dry and brittle, and within an hour its back gradually begins to split open to allow the escape of the dragonfly that is imprisoned within it. In a few more moments the head and thorax of the insect begin to emerge through the slit. At first they bend helplessly backward by their own weight, for the creature is still very soft and wet and must hang for a time in the sun and wind to dry and harden. When this has taken place the insect reaches upwards and grasps the stem with its hooked legs, and then slowly withdraws the rest of its body from the old pupal shell. At first there is no sign of the lovely iridescent colours, but gradually they begin to appear as if absorbed from the light. And then



A male Golden-winged Dragonfly, which is found near fast running streams and rivers in July and August.



**The Emperor Dragonfly.**

there comes the moment, after its wings have grown to their full size, when this splendid insect is ready to fly.

Although they are so different, the dragonfly and the dragon-nymph have one thing in common, and that is their rapaciousness. But whereas the underwater dragons hunt by stealth, the flying dragons rely upon speed and skill when following selected prey. The mature dragonfly's mobile head is fixed on a narrow neck, and the huge compound eyes have a wide field of vision; in fact it can almost be said that a dragonfly can see out of the back of its neck! The six legs are set well forward to grip securely, and powerful jaws tear victims to pieces in flight.

There are 43 species of dragonfly, but few of them have popular English names. At one time an attempt was made by a well-known naturalist to call them after precious stones, the predominating colour of the insect matching the colour of the jewel. But as dragonflies fade very soon after they are killed, and there is at present no way of preserving the often brilliant colouring in their bodies, these really quite suitable names never became popular.

In some country districts all dragonflies are known as "horse-stingers," but this name seems to give them an evil reputation that is entirely undeserved. It is a fact that a horse will stampede should one of the larger species fly close to it, showing that the countryman as usual was observant of natural history phenomena. But the dragonfly has no sting and never attacks a warm-blooded animal, although it must be admitted it looks dangerous enough with its long "spiky" tail. Insects alone are its real prey, and during the first few weeks of high summer that is the duration of its life it accounts for flies and gnats by the thousand.

Dragonflies are so much creatures of the air that many of them lay their eggs while in flight. In the case of the slender bright blue demoiselle dragonflies the pairs stay together while

the female lays her eggs. She starts by piercing the stem of some yellow water lily, or other weed that reaches above the surface, and lays her eggs in the plant tissue. Then slowly she moves backwards, swaying from left to right and gradually descends the stalk, pulling the male with her until both vanish into the water. Both insects are surrounded by air bubbles which give them a silvery look. When the egg laying, which takes place about six inches below the surface, is completed, the dragonflies let go their hold on the stem and shoot up into the air again.

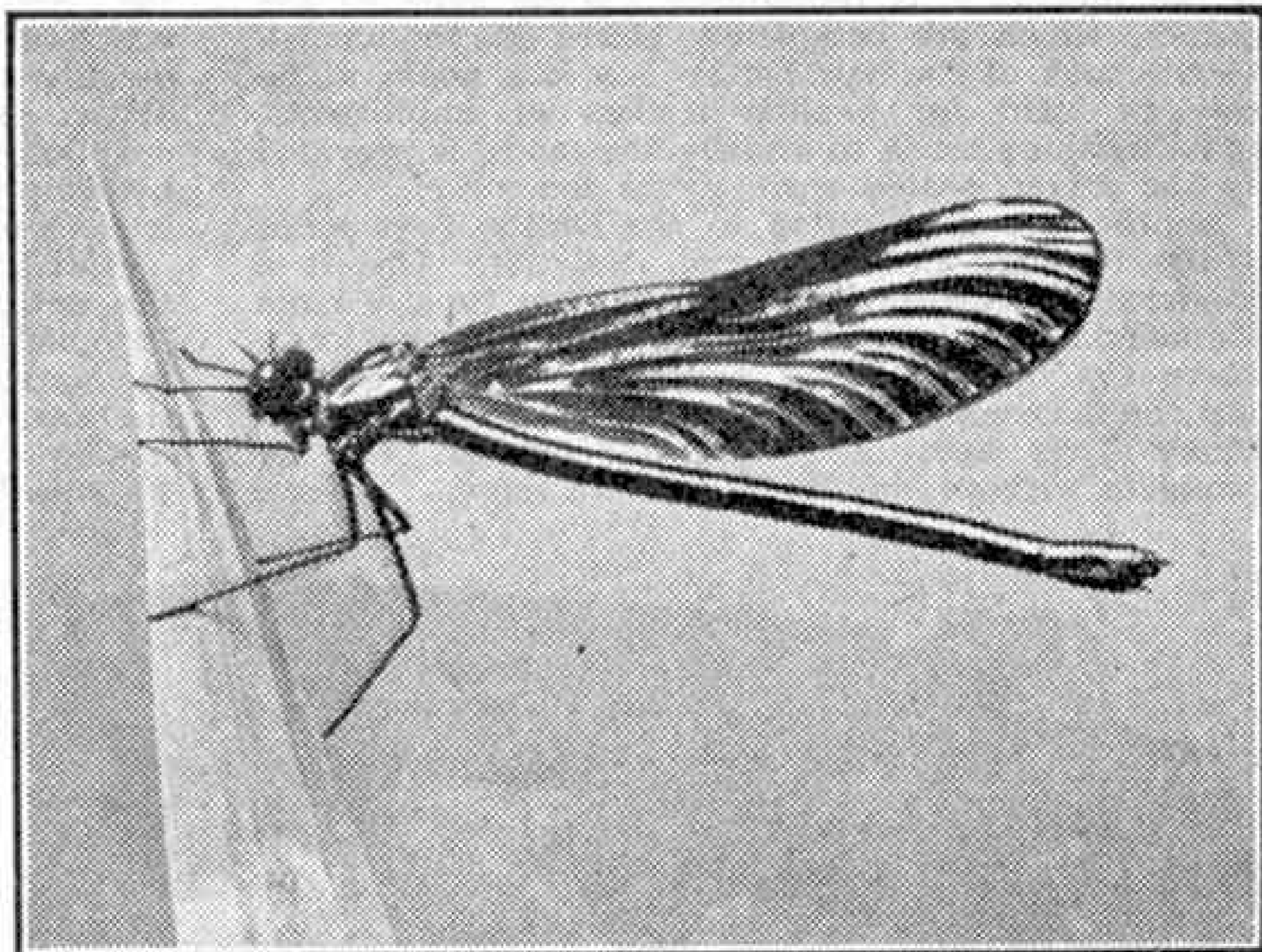
Some dragonflies lay their eggs in batches on floating water plants, others in long strings twined round the weeds, while the large Emperor dragonfly lays hers in the soft mud just above the water line in the bank of a pond. There is at least one species that is found near fast-running streams, but you will mostly see them in dykes and mill ponds, where the waters are quiet and undisturbed. In Southern Europe there is a slender green dragonfly that lays its eggs in the tips of willow twigs overhanging water. A kind of gall forms round the eggs and when the larvae hatch out they let themselves drop into the stream.

If you want to breed out some dragonflies in your home, you must first of all construct a small pond, or better still acquire an aquarium, as they can be observed under closer conditions in this way. It must be stocked with water-weeds of the right type to oxygenate the water, and the usual water snails to act as scavengers. Food will have to be provided for the nymphs, but you will find they will eat almost any living thing that you can dredge from pond or stream.

To stock your pond or aquarium with nymphs will not be as easy as it sounds, as many species lurk in the mud at the bottom, and will avoid your net as you fish for them. But experience will teach you how best to effect a capture, and often the weeds round the margins of ponds will repay careful sifting and dredging. But having secured a fair number of specimens you should not be too confident of success, as in their nymph stage dragonflies are shocking cannibals, and after a few days you may find you have only one nymph left in the aquarium—and it will be a very big one!

Dragonflies are found all over the World, and are still amongst the largest insects, but the modern species are mere dwarfs compared to the giants of the carboniferous age. They measured over two feet across the wings and might, in very truth, be described as "flying dragons!"

The photographs to this article are by D. Ashwell.



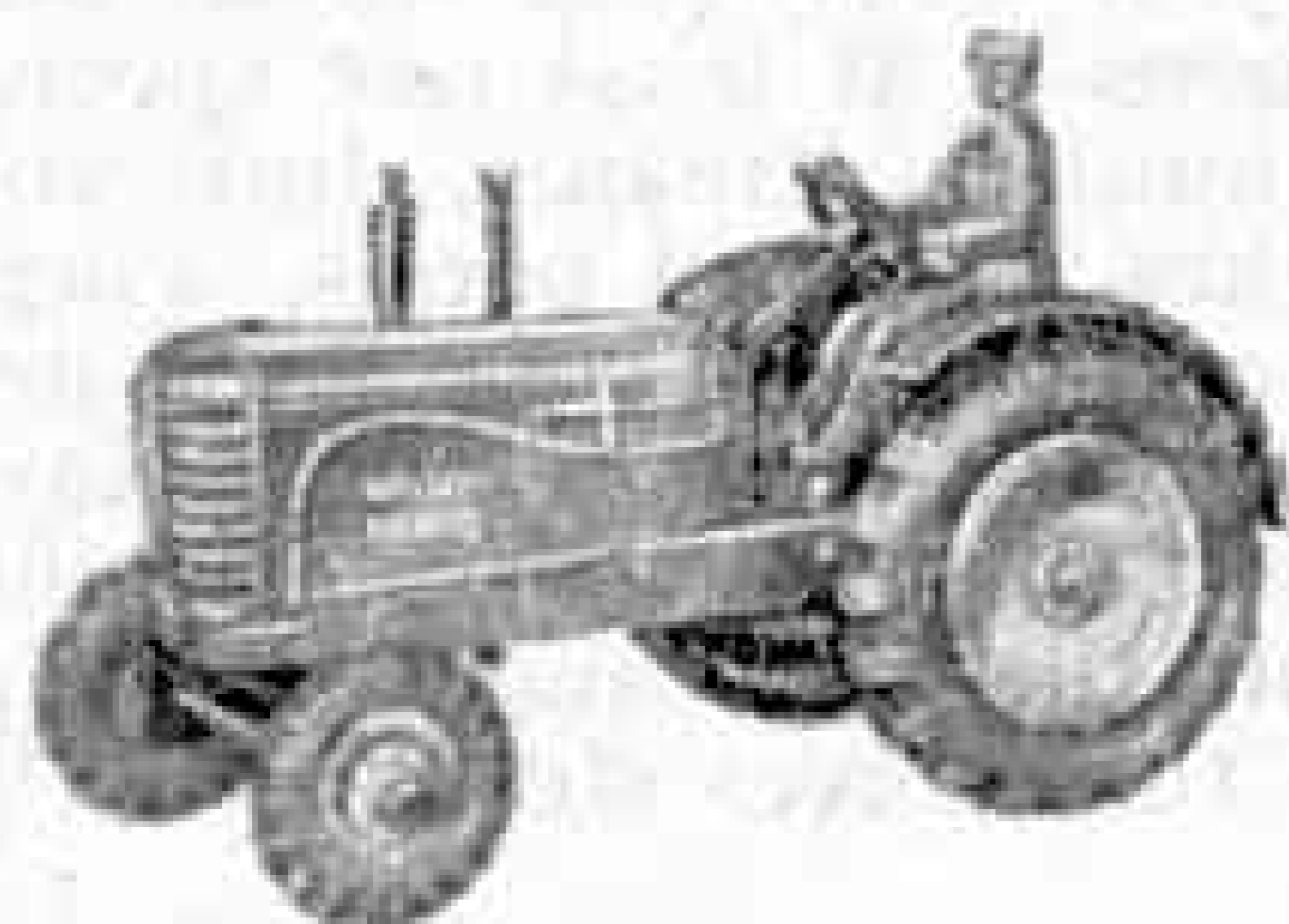
**A demoiselle dragonfly reared from a nymph that lived happily in a jam jar for eight months.**

# New Dinky Toys and Supertoys

## A Variety of Fascinating Miniatures

**T**RACTORS are steadily increasing in numbers in the countryside, where they are taking over more and more of the work formerly done by horses. They haul reapers, cultivators and other agricultural implements, and they are becoming of greater importance than ever as we struggle towards recovery

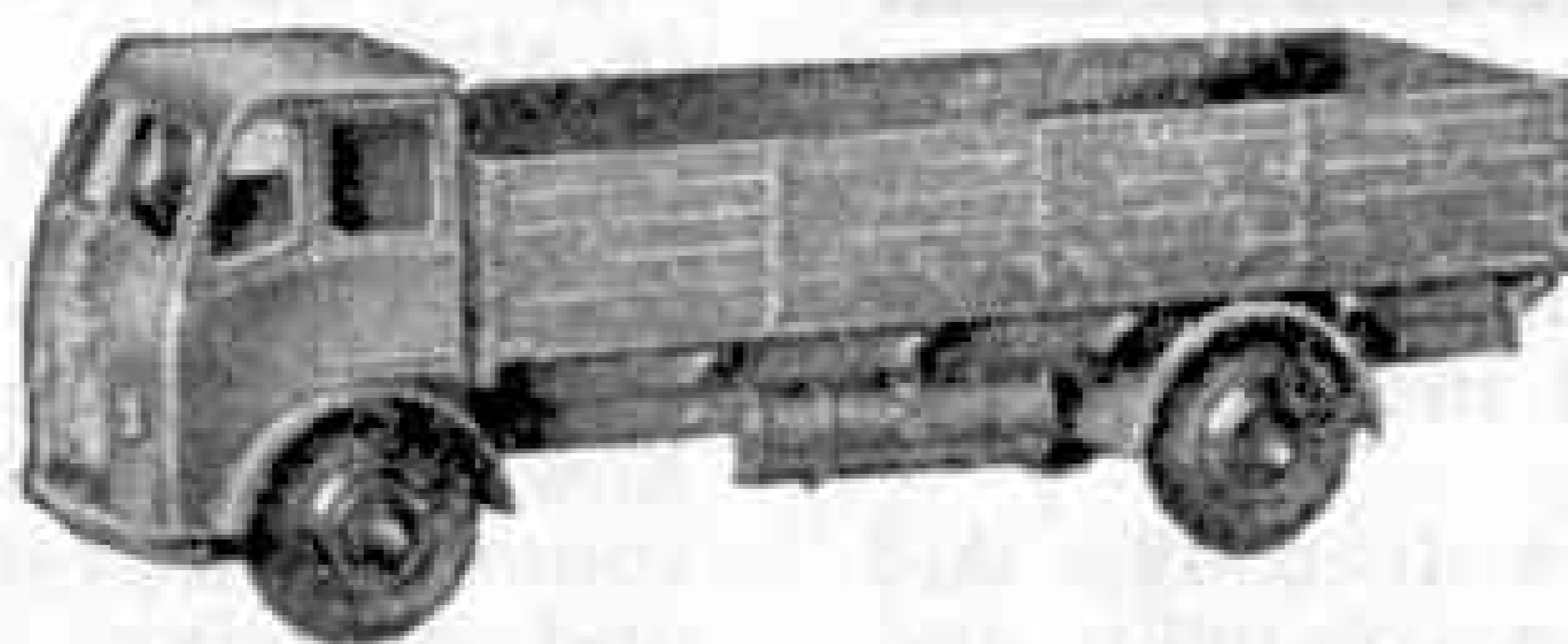
in the world food production drive. The tractor is therefore a very suitable subject for a new Dinky Toy, and in the splendid reproduction of a Massey-Harris Tractor, No. 27a, that now makes its appearance in the Dinky Toys range we have a very fine example that will become exceedingly popular.



**Massey-Harris Farm Tractor, No. 27a.**

Massey-Harris is a famous name in the agricultural world. The firm was founded just over 100 years ago, and throughout its life it has been in the forefront with the design and manufacture of farming machinery and requisites of all kinds. Its range of tractors includes five of these power units, ranging from the small "Pony," specially suitable for the small farm or the market garden, to model No. 55, a giant machine for the large scale farm. The one that has been chosen for reproduction in miniature in the Dinky Toys series is model No. 44, the second largest in the range. The model is true in form to its original in every respect, from the radiator grille at the front to the large rear wheels with their giant ribbed tyres that take a firm grip on the ground. Every possible detail of the tractor is accurately reproduced in correct colours, red for the chassis, bonnet and mudguards over the rear wheels, yellow for the centres of the wheels, and black for the steering column and wheel, and for the silencer and "breather" that emerge from the top of the bonnet. The name of the makers of the prototype is reproduced on the sides of the bonnet, which are completely closed in the model. At the back of the new Dinky Toy is a hook, which may be used for hauling trailers or implements, and a finishing touch to a really fine model is provided by the driver, seated correctly at the wheel.

Another recent addition to the Dinky Toys series is the Forward Control Lorry, No. 25r. This is a handsome representation of the modern type of large commercial vehicle, with the cab set at the very front. There the driver has an excellent view all round, and the maximum space is available for loading. No Dinky Toys fleet of commercial vehicles will be complete without this really modern lorry.



**Forward Control Lorry, No. 25r.**

The latest Dinky Toy is in striking contrast to the two already described. It is the neat Garden Roller, No. 105a, illustrated on this page. This is a delightful little model that will please all who love to play with Dinky Toys. As in the real thing, the roller is made in two parts to allow for ready turning without damage to turf, and owners of Dinky Toys layouts that include lawns or gravel paths will thoroughly enjoy "rolling" them with it. In fact, its appearance will probably encourage enthusiasts to include green lawns and other suitable open spaces in layouts of this kind in order to give them an excuse for making use of it! The model is brightly coloured in red and green, and the metal tread of the roller itself is given a special finish.

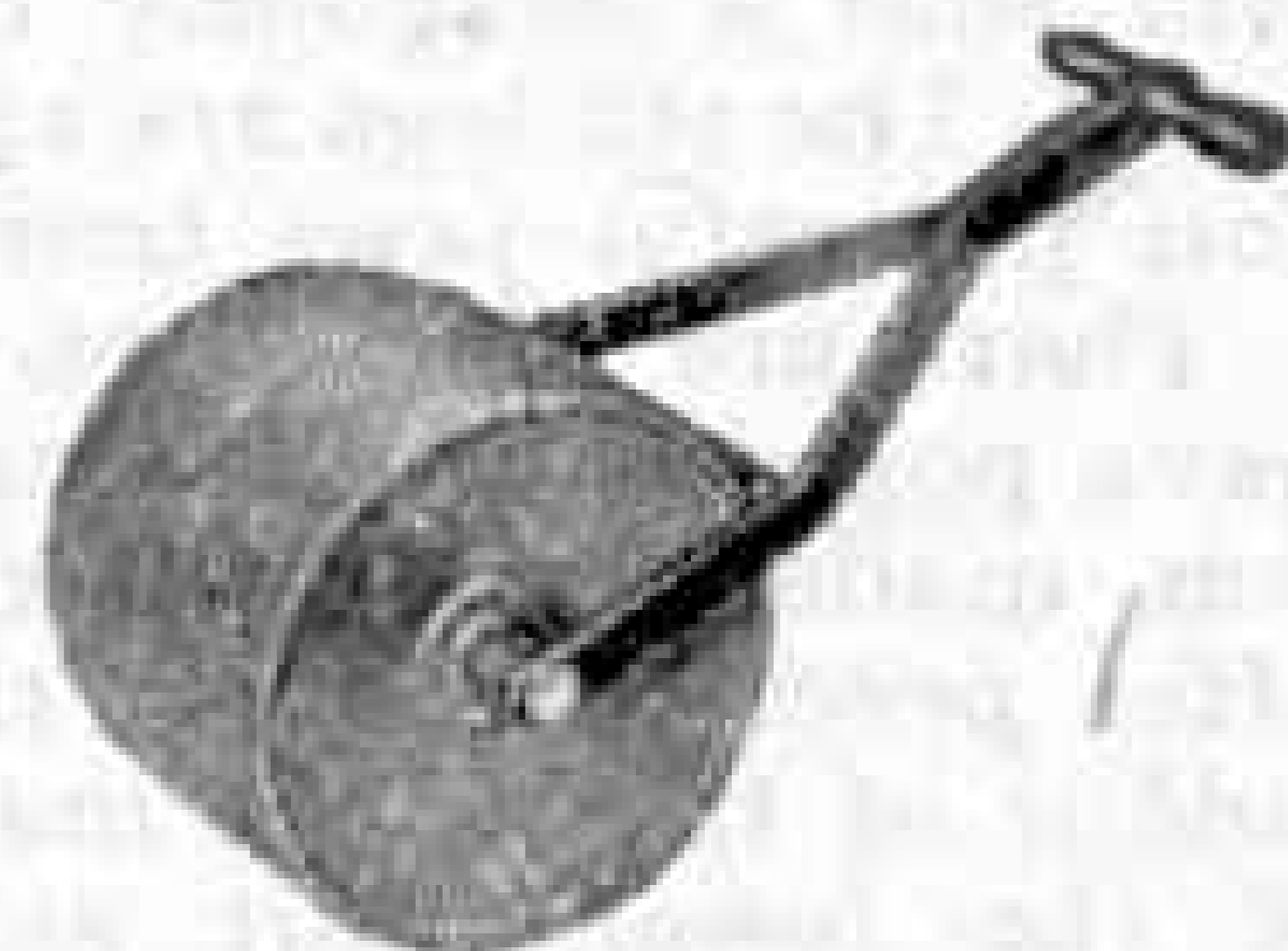
The Dinky Supertoys series too has seen recent introductions of the very greatest interest, which provide their owners with splendid opportunities of developing layouts in which they can be put to a good use. These include the Bedford Articulated Lorry, No. 521, for which a Trailer, No. 551, has now been provided.

It is impossible to resist these handsome and realistic miniatures. The tractor portion of the Articulated Lorry is a miniature of a Bedford, and the body is permanently attached to it. Here again close attention has been given to details, and in outward appearance the model is complete, down to the accurately reproduced Bedford radiator grille, the representation of the petrol tank on the offside of the chassis and the mounting of the spare

wheel on the platform between the cab and the front of the body. The latter is of large capacity—the entire model is 6½ in. in length—and it is capable of giving good service in haulage contracts or similar work arranged in connection with operations on any Hornby Railway or Dinky Supertoys layout.

The body of the Trailer is the same size as that of the Articulated Lorry, to which it can be attached quickly and easily by means of a coupling loop. Uncoupling is carried out with equal speed and ease by simply tapping the coupling upward, which lifts it clear of the hook of the Articulated Lorry.

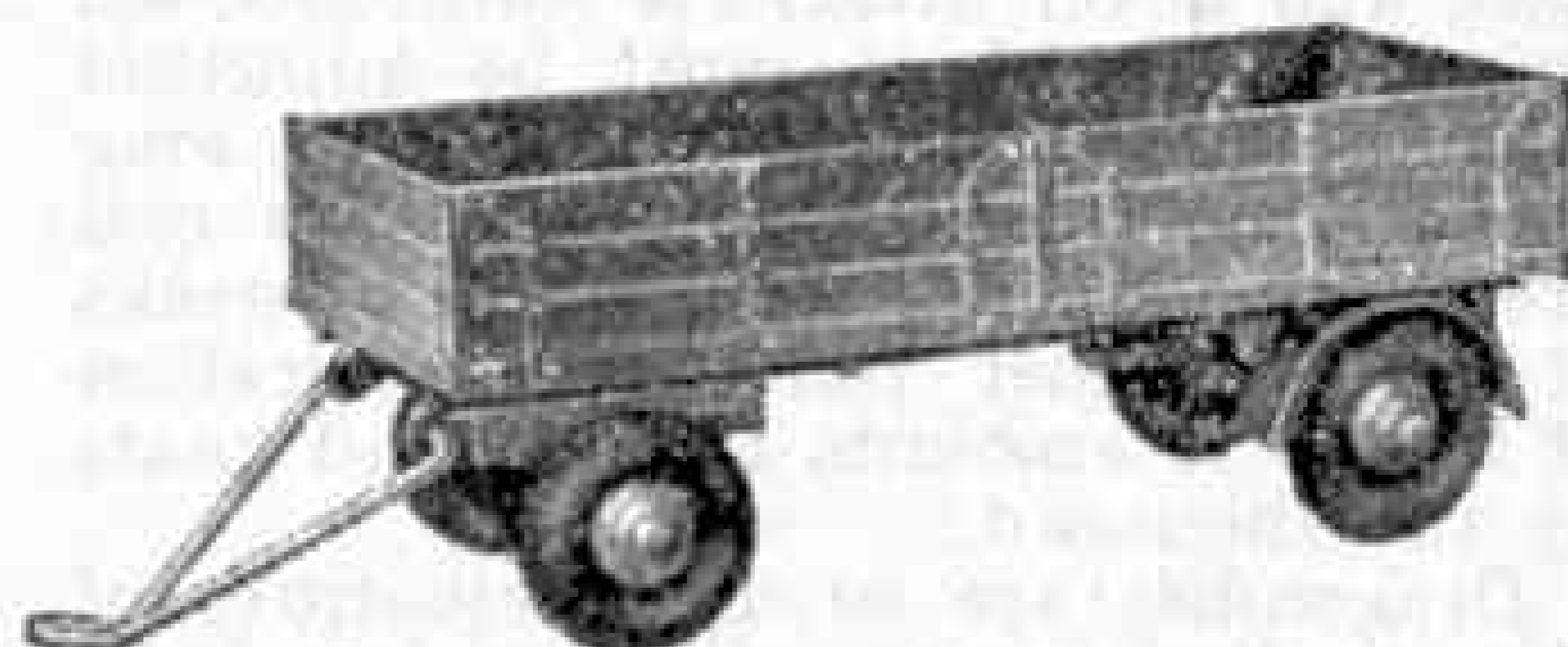
Both these new Dinky Supertoys will provide the enthusiast with real fun in manœuvring. The Articulated Lorry can be backed readily into spaces too narrow for easy entry with an ordinary lorry of the same size, and the Trailer after loading can be hauled out into the most suitable position for picking up when starting on a journey.



**Garden Roller, No. 105a.**



**Bedford Articulated Lorry, Dinky Supertoys No. 521.**



**Trailer, Dinky Supertoys No. 551.**

# BOOKS TO READ

*Here we review books of interest and of use to readers of the "M.M." With the exception of those issued by the Scientific and Children's Book Clubs, which are available only to members, and certain others that will be indicated, these should be ordered through a bookseller.*

## "STEAM-ENGINE BUILDERS OF NORFOLK"

By RONALD H. CLARK  
(Augustine Steward Press. 5/6)

It will come as a surprise to most readers to learn that as many as 31 establishments have been engaged in building steam engines of various kinds in Norfolk, an agricultural county, and that three are still making them. The earliest example seems to have been a portable engine built by Burrell at Thetford in 1848, and then came a succession of vertical, horizontal, marine, beam and portable engines, with others built specially for roundabouts, as well as traction engines and road locomotives. The record of this activity that Mr. Clark has compiled is of the greatest interest from every point of view, and we are indebted to him for the preservation of details of many interesting engines now on the scrap heap and the reproduction of pictures of these, and in some cases of their makers.

The plan Mr. Clark has followed is to take each of the various makers in turn, in alphabetical order, and to give historical notes on their achievements, with as many illustrations as possible. Many famous names come in the list, including the Burrells, Dodmans and Tidmans, and there are interesting accounts of steam ploughing machinery and cultivators such as the famous Darby Digger. Fairground engines too are prominent. It was a Norfolk man, Sydney George Soame, who first adapted the steam engine to drive fairground machinery, and the idea was developed wonderfully by Frederick Savage, whose works were established at King's Lynn.

## "MY BEST RAILWAY PHOTOGRAPHS No. 8"

By F. R. HEBRON (Ian Allan Ltd.)

Mr. F. R. Hebron has been turning out first-class work for many years. In selecting the subjects for his contribution to the "Best Railway Photographs" series he has aimed at presenting pictures of various types of locomotives that have appeared on L.N.E.R. main line trains from the earliest days of grouping until now. Many of the pictures are of outstanding interest, especially those showing various pre-grouping types at work off their own "beaten track."

With the advance of standardisation the train photographer has less choice of subject than was once afforded, and it is a pleasant change from current conditions to run through the pages of this book. As usual in the series, the author gives information as to his favourite methods, and his hints will be of interest to the experienced and to the novice alike.

The book costs 1/6 from booksellers or 1/8½ from the publishers, Ian Allan Ltd., 33, Knollys Road, Streatham, London S.W.16.

## "MAIN LINE RAILWAYS OF NORTHERN IRELAND"

By W. P. MCCORMICK (2/6)

In this book the author records the activities of the separate main line railways of Northern Ireland and sketches the development respectively of the Great Northern, the L.M.S. (Northern Counties Committee) system and the Belfast and County Down Railway. Individual features and works, train services, locomotives and rolling stock are all briefly mentioned. There is a table of stock, with dimensions, in each section, and a map and brief statistical details add to the general usefulness. The illustrations are interesting, but are not very well produced.

Copies are obtainable from the author at "Islandvale," King's Road, Belfast price 2/9 including postage.

## "BRITISH ELECTRIC TRAINS"

By H. W. A. LINECAR (Ian Allan Ltd. 5/-)

Mr. Linecar's purpose in this book is to give a fuller insight into the electric railways of this country than has hitherto been available in one volume. In this object he succeeds very well. He begins with a brief historical note on the various more or less elementary electric lines. The next section covers the London Transport lines, and their development from the early "Tubes," with special attention to the electrification in the early years of this century of the steam-worked Metropolitan and District lines.

Some "might have been" electric railway schemes are the subject of the next section, and then we return to actual fact with the schemes of the former L.M.S., L.N.E.R. and S.R. and their constituents; and details of smaller systems, British electric locomotives, as yet few in numbers, and the Post Office "Tube." Power supply, current distribution and control equipment are dealt with in each section, and the rolling stock, train formation and operating arrangements also are included. Illustrations are fairly plentiful and for the most part are well reproduced. Copies cost 5/- from booksellers, or 5/3 post free from Ian Allan Ltd., 33, Knollys Road Streatham, London S.W.16.

## "FUN WITH PHYSICS"

By FREDERICK JEFFS  
(Southern Editorial Syndicate. 4/6 net)

For the boy with scientific inclinations this is an excellent little book. It takes the school work out of physics by showing how to make a series of attractive, and sometimes exciting little experiments, with apparatus that can readily be made from material within easy reach, with the addition of a few items for special purposes. Many indeed can be made with nothing but scrap material, and adapting this will be found almost as interesting as the experiments which deal with magnetism, electricity and heat, light and sound, with essays in glass blowing. Finally there is a "Lucky Dip" of attractive devices that do not come under the general headings. These include a gas bomb that probably would have been better omitted. Good diagrams are provided.

## "THE REVOLVING HEAVENS"

By R. L. WATERFIELD, M.B., B.Sc., M.R.C.P.  
(Duckworth. 6/- net)

Mr. Waterfield has written for would-be astronomers who have no telescopes or other special aids at their disposal. During the war the night skies were revealed to many who had not previously seen them in their full glory because of the lights of cities or because they did not find themselves out in the open during the night watches. It was then realised to the full that knowledge of the stars was useful as well as interesting, and this knowledge is here provided in concentrated form by the author. Concentration makes the reading a little heavy in places, but those who work their way through the book will have made an excellent start in this fascinating science.

Such matters as measurement of position and time are briefly but clearly explained, and their explanation helps to give a praiseworthy precision to readers' ideas, often lacking in those who depend on merely descriptive works for astronomical knowledge. The Sun, the Moon and the planets are all dealt with in turn, with a specially good chapter on the tides, and there are final sections on the stars beyond the solar system, shooting stars and comets. There are 29 diagrams and a good index.

# Air News

By John W. R. Taylor

## "Hastings" Record Flight

Arriving in Sydney 46 flying hours after leaving England, a Handley Page "Hastings" military transport has set up a new unofficial record, beating by 2½ hrs. the previous record held by a Lockheed "Constellation."

The record flight was made at the beginning of a 26,000-mile tour to Australia and New Zealand by this particular "Hastings." The tour, which was made with the co-operation of the Ministry of Supply, was intended primarily to try out this new standard R.A.F. long-range transport in tropical and intensive-flying conditions, and to demonstrate it to the R.A.A.F. and R.N.Z.A.F. Doubtless, however, those who saw the machine during stops at Malta, Habbaniya (Iraq), Karachi, Ceylon and Singapore, as well as in Australasia, will also consider the possibilities of the "Hastings" civil counterpart, the "Hermes" air liner, which has been ordered by B.O.A.C. for the Empire air routes.

## Success of Martin 202 in Service

After three months of operations with new Martin 202 air liners on routes between Billings, Montana, and New York, Northwest Airlines of America have ordered 15 more 202s from the Glenn L. Martin Company. They will be used on all of N.W.A.'s domestic routes and delivery should be complete by the end of this month. The full fleet of 25 202s will fly the equivalent of twice round the world at the Equator every day.

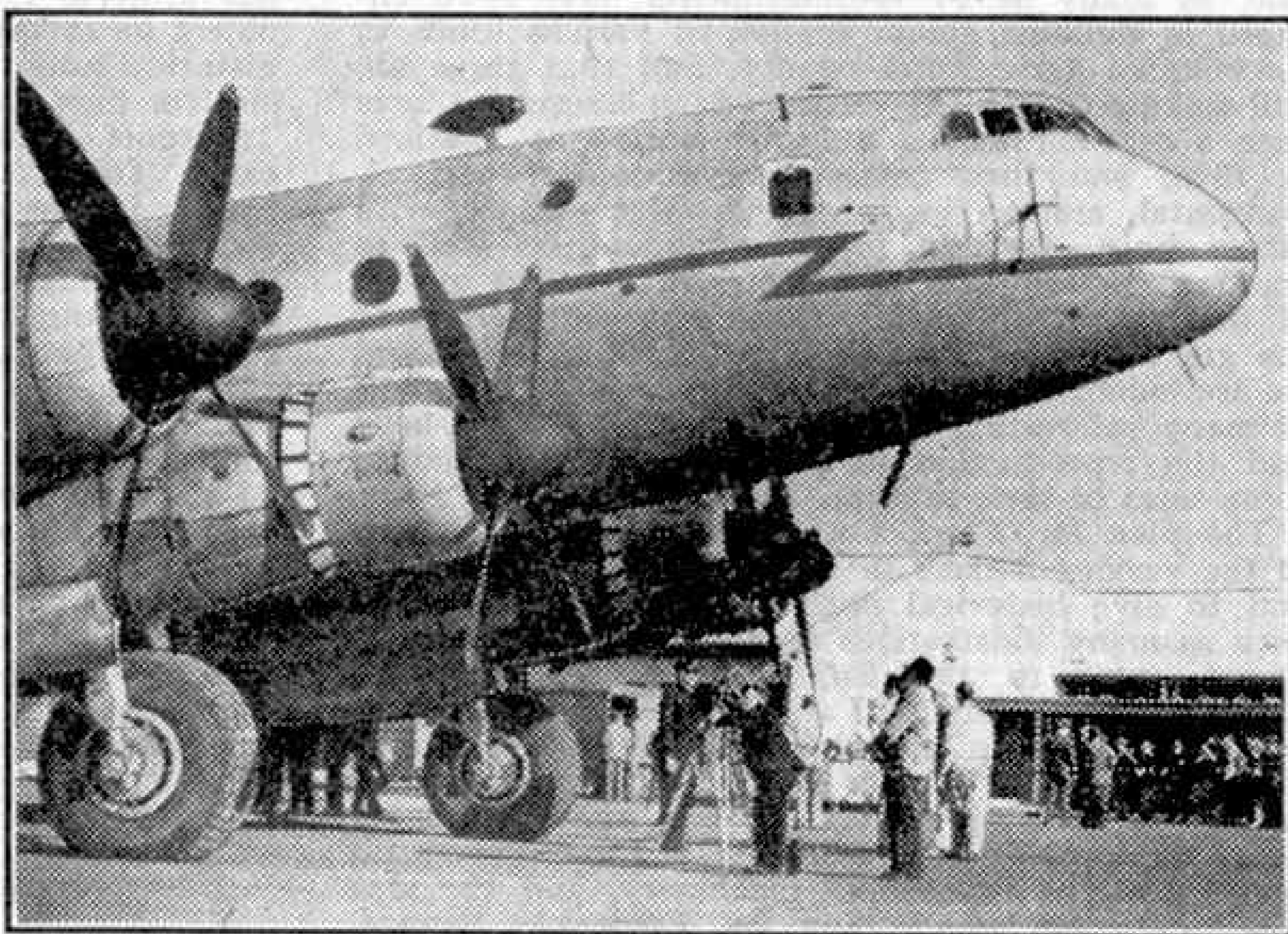
## de Havilland Regain Record

The capabilities of the de Havilland 108 tailless research aircraft were well demonstrated on 12th April last when John Derry, a D.H. test pilot, regained the coveted 100-kilometre Closed Circuit Speed Record for the Company with a speed of 605.23 m.p.h. This bettered by 40 m.p.h. the previous record set up by Mike Lithgow in a Supermarine "Attacker," and is only some 45 m.p.h. less for a five-cornered circuit than the world's Absolute Speed Record for a straight flight.

## The Grumman "Albatross"

The Grumman XJR2F "Albatross" amphibian, illustrated below, is designed for rough-water operation in the open sea. It is the product of extensive hydrodynamic research, and has more freedom from "porpoising" and instability in rough water than any U.S. Navy aircraft so far built. With a crew of three, it can carry 14 passengers, 16 stretcher cases, or more than 4,100 lb. of cargo.

The "Albatross" is powered by two 1,425 h.p. Wright R-1820 engines, has a top speed of 270 m.p.h. and can fly 600 miles at 225 m.p.h. with a full load



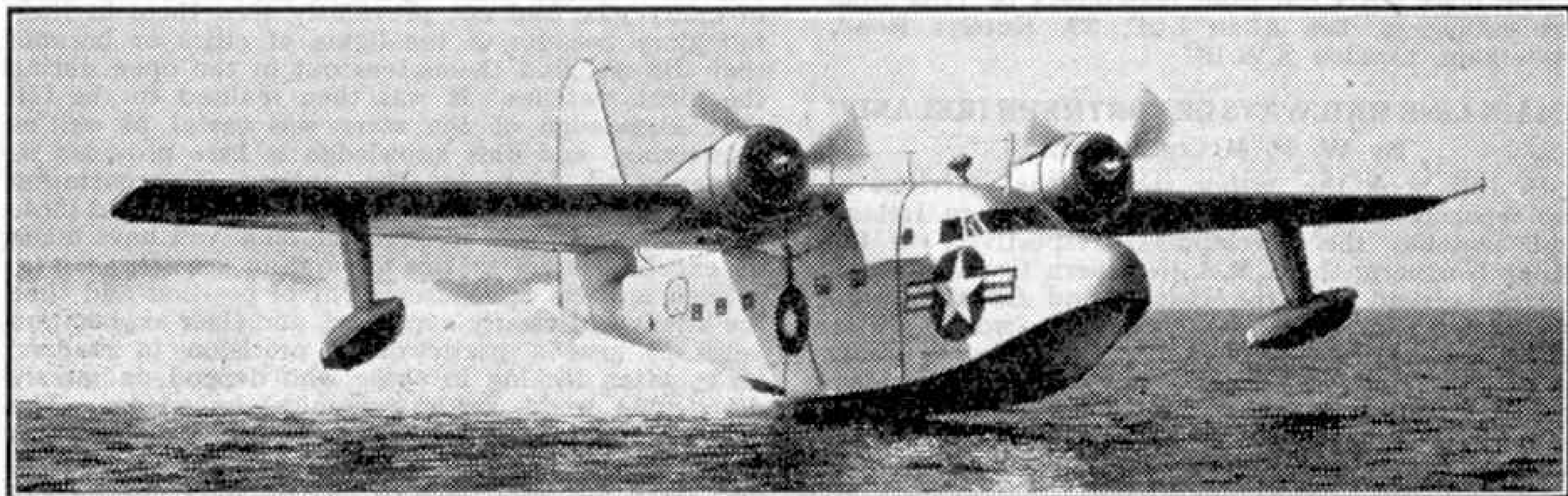
The Handley Page "Hastings" military transport at Kingsford Smith Airport, Mascot, Sydney, Australia, during its recent 26,000-mile tour. Photograph by courtesy of Handley Page Ltd.

of passengers, or 1,400 miles as a freighter. It is a fairly large aircraft, with a wing span of 80 ft., but can get off the water in 12 sec. by using rocket-assisted take-off units.

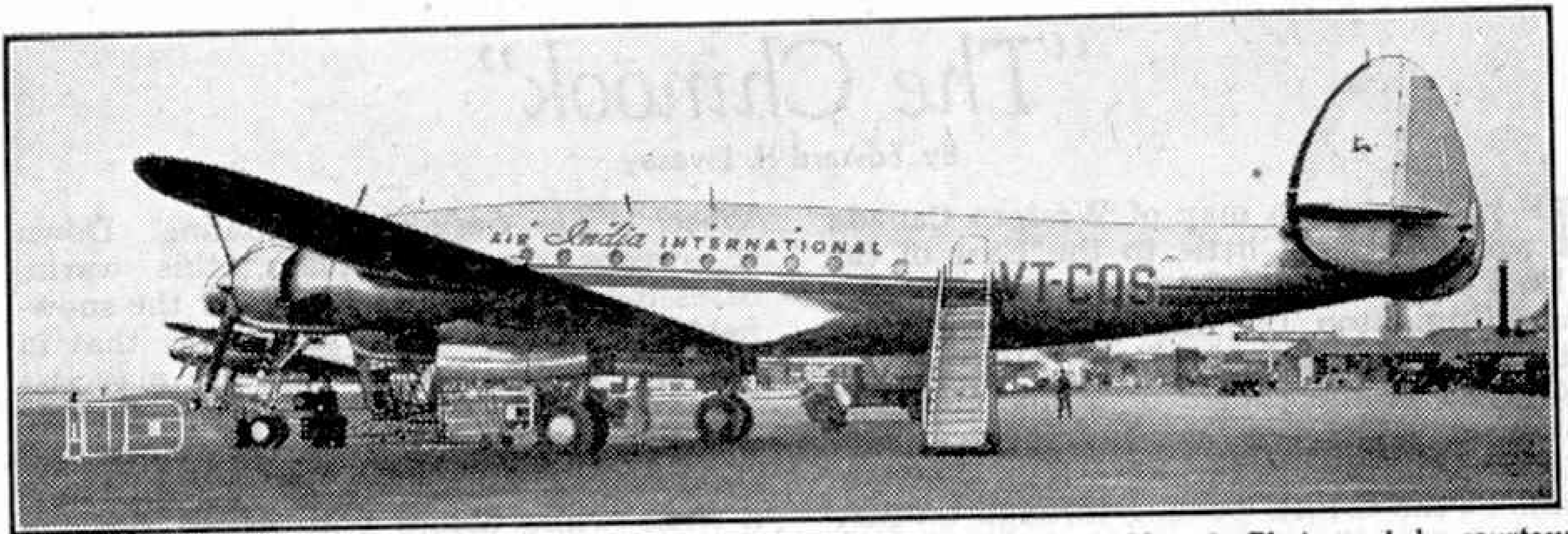
## Increased B.O.A.C. Atlantic Services

The Summer timetable introduced by B.O.A.C.'s Atlantic Division a few weeks ago provides an additional 86 seats weekly in each direction between the United Kingdom and the North American continent, and 43 more each way between the U.S.A. and Bermuda.

Six "Constellation" *Speedbird* services are operated weekly each way on the New York run and three on the Montreal service. B.O.A.C. services on the dollar-earning New York-Bermuda route have been increased from three to four round trips weekly.



Grumman "Albatross" twin-engined amphibian. Photograph by courtesy of the Grumman Aircraft Engineering Corporation, U.S.A.



Air India International's first Lockheed "Constellation" air liner at Heath Row Airport. Photograph by courtesy of Air India International.

### Air India Chooses "Constellations"

Air India, latest entry into the field of international air travel, have chosen a small fleet of "Constellations" for their new twice-weekly Bombay-London air service. These 44-seat machines will be operated by a subsidiary airline, Air India International, owned jointly by Air India Ltd. and the Indian Government. The cost of the "Connies," including spares, is about £1,060,000.

Air India is the 14th major world airline to use "Constellations," and these fine aircraft are now in service in every continent. Their 328 m.p.h. cruising speed will bring Bombay within 24 hrs. of London, with a probable scheduled time of 22½ hrs. for the flight. They will feature a divided cabin, and so be suitable for mixed sleeper and day-type service if required.

Air India also operate a fleet of 28 twin-engined aircraft, including six "Vikings," on services between Bombay, Delhi, Karachi, Calcutta, Madras and Colombo. The crews, including air hostesses, are 100 per cent. Indian.

### More Export Orders for de Havillands

Following recent large orders for "Vampires" from Sweden and Switzerland, de Havillands have received a contract from the Norwegian Government for four of these fine jet fighters. If the Royal Norwegian Air Force find the "Vampire" as satisfactory in service as they expect, there is little doubt that they will adopt a similar policy to that of the Swiss Government, whose recent order for 75 "Vampires" was placed a year after a flight of four test aircraft was delivered.

The de Havilland Company have also received a contract from the Argentine Government for 50 more "Dove" light transports, following an earlier one for 20 of these aircraft. This order includes quantities of spares and will contribute nearly £2,000,000 to the export drive. Some of the "Doves" will be fitted with special equipment for combating locust plagues.

### "Sea Otter" for Venezuela

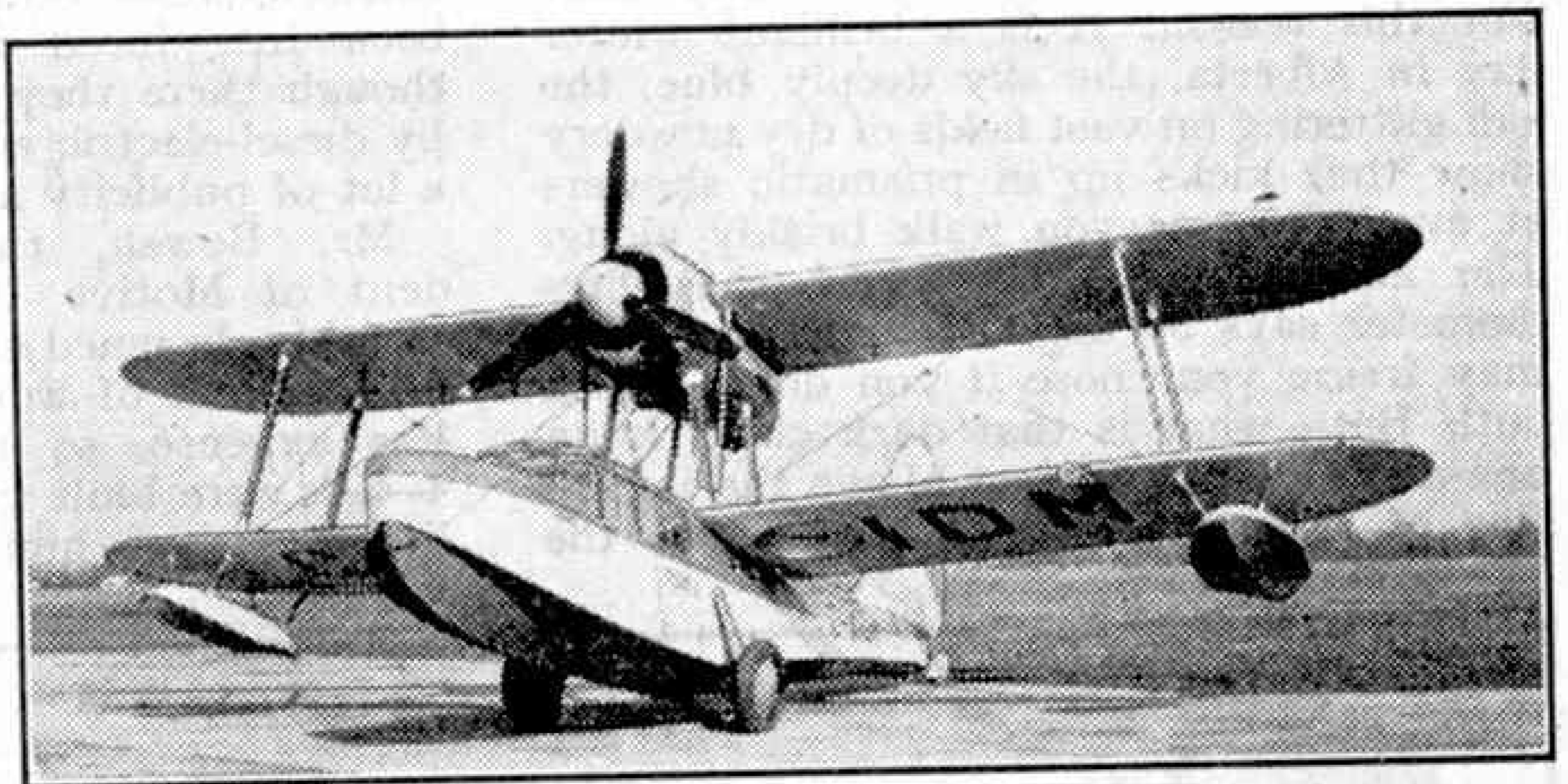
Designed for air/sea rescue duties over the cold waters around these islands, a Supermarine "Sea Otter" amphibian has been sent to the tropical jungles of Venezuela, where it will be used by the Royal Dutch Shell Group for geological survey work in the swamp

areas around Lake Maracaibo. The "Sea Otter" is an ideal machine for such work, as it is very reliable and can land and take off from small patches of water and specially-prepared landing strips which rarely exceed 600 yd. in length.

The "Sea Otter" sent to Venezuela differs little from the standard machine and is powered by the usual "Mercury" engine. Internally, however, it has been converted to carry five passengers, and the loading hatch has been enlarged to permit easy loading of a stretcher—a very useful feature in such a district.

### Fairey Affairs

With subsidiary companies already established in Belgium, India and Canada, the Fairey Aviation Company have now joined with one of Australia's leading engineering concerns in forming Fairey-Clyde Aviation Pty. Ltd., a new company with headquarters in Sydney. It will take over the plant and personnel of the Aircraft Division of the Clyde Engineering



Supermarine "Sea Otter" amphibian as supplied to the Royal Dutch Shell Group. Photograph by courtesy of Vickers-Armstrongs Ltd.

Company and will, of course, have access to the full technical and production facilities of the main Fairey companies. This development lends weight to recent unofficial reports that the new Australian Naval Air Arm will be equipped with Fairey "Firefly" and Hawker "Sea Fury" fighters.

Following successful anti-locust operations by 11 Bell Model 47 helicopters in the Argentine, the Argentine Navy has bought six of the latest Model 47D from the Bell Aircraft Corporation. They will be used for liaison between units of the fleet and for training purposes. Fully equipped for night flying, they will be able to carry out rescue and other missions after dark on wheels or floats.

# "The Chinook"

By Edward H. Livesay

IF you look at a map of Western Canada you will see a little to the East of the Rocky Mountains the two cities Calgary and Edmonton, 194 miles apart. Edmonton is the provincial capital of Alberta, and Calgary is the centre of a fine ranching district. Both are "railway towns," with lines radiating in every direction, the main line of the C.P.R. passing through Calgary and that of the C.N.R. through Edmonton. In addition, each has a population of over 100,000, so that naturally a good deal of traffic, rail and road, passes between them. One of the trains shuttling to and fro is "*The Chinook*," pronounced "Shinook" by the way. It is one of the fastest in western Canada, probably indeed the fastest, and it is hauled by a unique type of engine, so "*M.M.*" readers may like to take a trip with me in the cab of C.P.R. 4-4-4 No. 3001 as she hustles "*The Chinook*" from Calgary to Edmonton. We shall see big cities and prairie towns, cattle ranches and cowboys, wheat fields and flying fields, and for most of the trip the Rocky Mountains will be in view to the west.

Why "*The Chinook*," you may ask? For this reason: It is a brilliant winter day in Alberta, the sky deeply blue, the sun glittering on vast fields of dry powdery snow that kicks up in prismatic showers at every step as you walk briskly along. The air is exhilarating, and the thermometer says 30 deg. F. below zero; you may freeze your nose if you don't watch out! But—what is that dark cloud lying like a trail of smoke just above the jagged tips of the white-capped Rockies to the

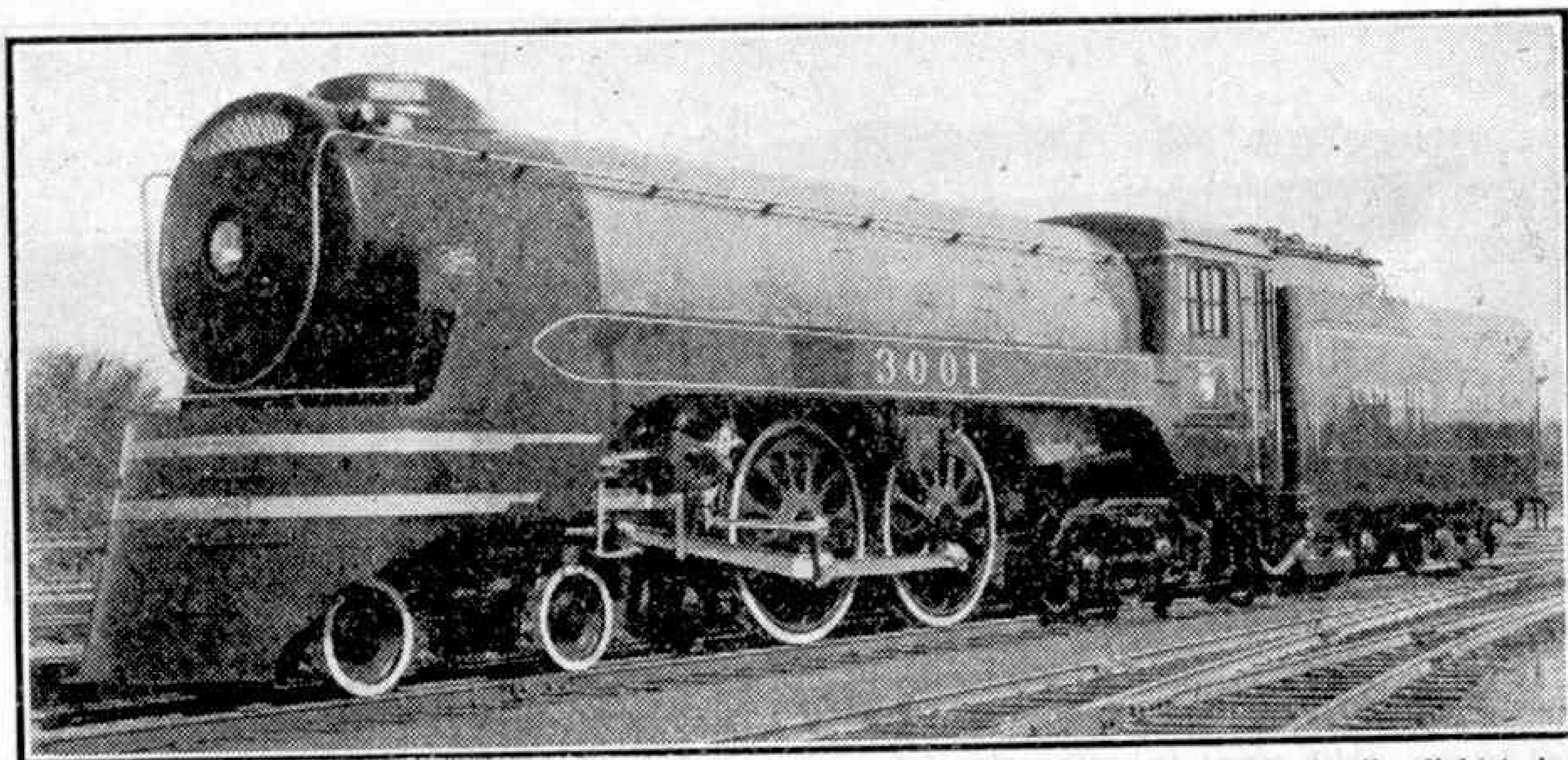
West? "*The Chinook*" is coming! Down it sweeps over the plain, this warm, caressing wind, fanning out over the snow-fields, licking them up so quickly that in an hour or two the temperature may rise 70 deg. and you will find yourself splashing through pools of water, slipping and slithering in viscous black mud where only a little while before you waded through white snow drifts and felt the iron-hard ground beneath.

But enough of wind and plain—you will want to hear about the engine. As you know, four-coupled engines have largely "gone out" in England, though there are still a good number of older vintage machines of this wheel formation in use there; and this is even more the case in Canada, where the type became outmoded earlier, and for the same reason. Loads became heavier, and speeds higher, calling for more adhesive weight, and six-coupled drivers were the obvious solution to the problem of providing greater traction and quicker acceleration. But in the mid-thirties the C.P.R. planned to run some ultra-fast light trains between certain Eastern cities, similar to those that had been introduced in the United States, though there they were generally worked by diesel-electric engines and were getting a lot of publicity as a result.

Mr. Bowen, the C.P.R. Superintendent of Motive Power, considered that suitably designed steam locomotives could do this sort of work equally well, and at less expense, so the "Jubilee" class of 4-4-4s were built to haul four light streamlined cars at high speed. Five engines



C.P.R. 4-4-4 No. 3001 at the head of a train of four streamlined coaches. The illustrations to this article are reproduced by courtesy of the Canadian Pacific Railway.



Another view of C.P.R. No. 3001. This locomotive is one of the "Jubilee" class, designed for hauling light trains at high speed.

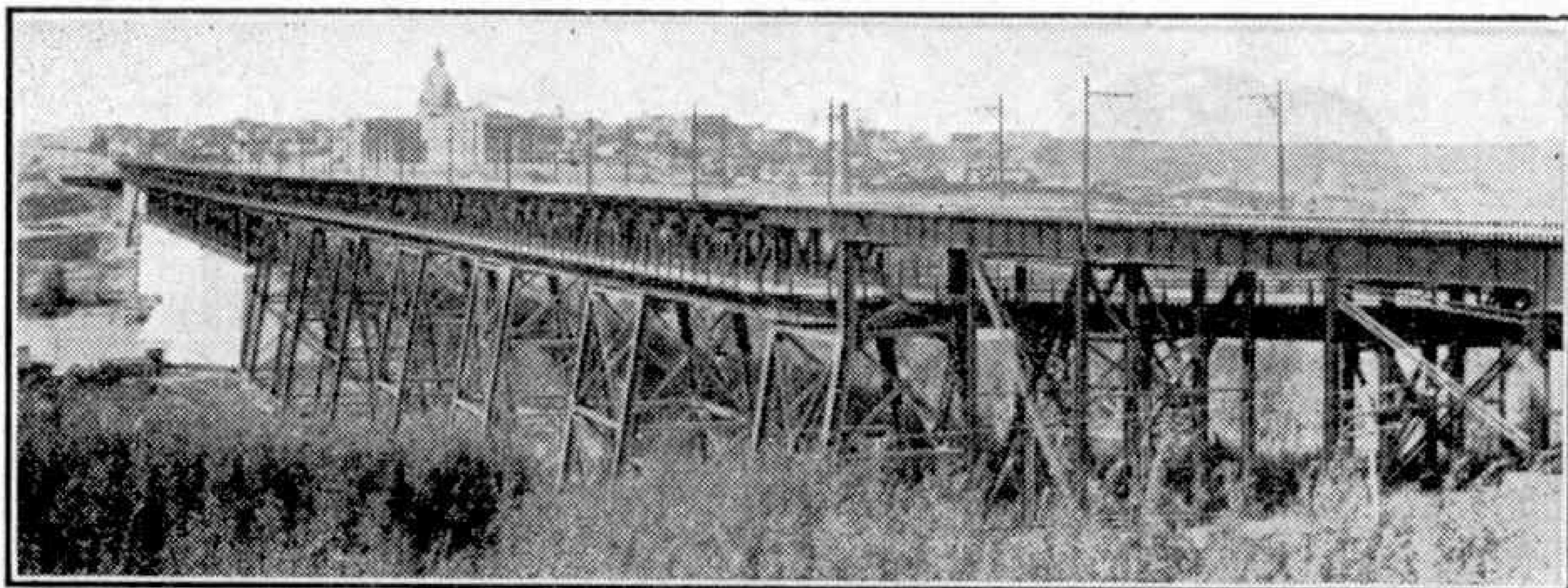
and 16 cars were turned out for these services, and the name "Jubilee" was given to the class because their advent happened to coincide with the 50th anniversary of the completion of the C.P.R. through to the Pacific coast.

Scarcely were the "Jubilees" out of the shops when for certain reasons the idea of running these ultra-fast light trains was given up, and other work had to be found for the engines, of which "*The Chinook*" is a typical example. This train is fast, granted, but it is neither light nor non-stop. Several ordinary cars are always tacked on to the four streamliners the engines were intended to handle; the train stops at every station, and has to travel like the mischief between them to make the respectable average attained from Calgary to Edmonton and *vice versa*. A six-coupled engine really would be better for such work, and certainly 6 ft. 8 in. drivers are needlessly big where frequent stops call for rapid pick-up; ample adhesion and moderate-sized wheels would be more in keeping with the demand. Nevertheless, the "Jubilees" do good work in this and similar circumstances, though built for different conditions.

Here are a few of her chief dimensions. The drivers are 6 ft. 8 in. in diameter, and the cylinder measurements are 17½ in. by 28 in., with Walschaerts valve gear. The steam pressure is 300 lb. per sq. in. The heating surface is 3,933 sq. ft., big for a pair of 17½ in. cylinders, and the superheater provides 1,100 sq. ft. The grate area of 55.6 sq. ft. also is very liberal for such small cylinders, and mechanical stoking is fitted. The engine weighs

117 tons, the drivers carrying 53 tons; the tender weighs 88 tons, with 12 tons of coal and 7,000 gals. of water. The tractive effort is 26,500 lb.; the British S.R. "Schools," also four-coupled, have 25,150 lb., for comparison. So you see that No. 3001 is a high-pitched "racy" engine, but is not really suitable for hauling a fast 350-ton stopping train, possibly in below zero weather.

It was a sunny autumn evening when I climbed into the cab at Calgary, finding Engineer Dean and Fireman Carswell in charge, and at 5 p.m., sharp on time, "*The Chinook*" pulled out. The train consisted of seven cars weighing about 350 tons. The prevailing gradient tends downward going north, but despite this the profile is quite saw-tooth, with plenty of adverse inclination and curvature. Speed picked up rapidly, but a couple of miles out the beginning of single track and the crossing of the Bow River bridge brought us to a halt; afterwards, the track stretched ahead through bald prairie, with long straights and sweeping curves, the jagged blue outline of the Rockies standing up to the left against the purple western sky. Speed soon rose into the sixties, in spite of a strong side wind; the permanent way seemed fairly good, though nothing to write home about, but the fire was a little troublesome, due to poor, dusty coal, and the pressure was down to 260 lb. per sq. in. Adjustments to the mechanical stoker, with its five steam jets blowing the fuel into the fire-box, soon remedied this, and at Airdrie I noticed the gauge needle was quivering near the 300 lb. mark.



The C.P.R. high level bridge across the Saskatchewan River at Edmonton.

Just beyond Airdrie we were ordered to pass another train at a crossing, and as we arrived there first our brakeman had to attend to the switches on entering and leaving, which meant two stops; also it began to rain a little, bringing a spot of slipping. The result was that at Crossfield, the next stop, we were five minutes late, and the combination of snappy start, up gradient and wet rails brought more slipping, plus muttered imprecations from Dean! Canadian enginemen don't like four-coupled wheels, which call for finesse with throttle, reverse and sand to a greater degree than with a six-coupled engine.

Onward to Carstairs my thoughts flashed back to its Scottish namesake and the several times I had passed through in the cabs of all three "Scots," bringing a pang of homesickness. The track was mostly level or downgrade, with frequent but easy curvature, and the speed became high along the straights, 75 m.p.h. or more, and three minutes were picked up. No. 3001 was rolling somewhat, and nosing too a little, but this was scarcely surprising, as she is high-pitched, and the track was not exactly perfect; it seldom is on the prairie, except on the main line, where it is good.

Coming into Olds, a big petrol tank lorry approached a level-crossing slowly and determinedly from the left, my side and the fireman's, so it was out of Dean's sight. The law ordains that a tank lorry must stop before crossing a railway track, and then restart, a very sensible rule. Did this pin-head driver do so? Not on your life; he deliberately crossed non-stop a few yards ahead of the train, and we missed him by a second or so! A slight miscalculation, a spot of engine trouble and a stall on the track, and a thousand gallons of petrol would have wrapped engine and train in a sheet of flame.

I noticed that No. 3001's whistle was worked by a pedal, a very sensible home-made gadget that saved Dean a lot of trouble; generally it is operated by a sort of bell-pull overhead. It was the first time I had come across this dodge, but I noticed it again later on the "Royal" engine No. 2850, the big 4-6-4 that hauled the Royal train across Canada in 1939.

Stops were commendably brief with "*The Chinook*." They had to be. At Bowden, for instance, we were only stationary 30 sec. We were out of the bald prairie by this time, and scattered clumps of trees were flying by—"bluffs" in Western parlance. The Rockies had receded, showing only as an irregular blue line low down on the western horizon. The sky had cleared again, and the setting sun cast long shadows on the yellow stubble of the harvest fields, turning the landscape to gold. Curvature was fairly plentiful, but was mostly easy, and the speed remained high.

A scheduled 10-minute stop at Red Deer suggested an across-the-street dash to a lunch counter, or what would be called a snack bar in Britain, ending in a whirlwind exit, outside only half my order, as the bell began to toll, and a grab at the handrail with

the engine well on the move. "*The Chinook*" waits for no man; certainly not for me. So at Ponoka, still hungry, I dropped back into the buffet car to refresh further the inner man, and to sample the streamlined cars, which proved to be air-conditioned, if anything overcooled, as they are apt to be, in my experience, but dustless, very easy-riding and quiet. The simplicity of the interior decoration, chiefly noticeable by its absence, was pleasing, and the lighting was mostly under the baggage-racks, close down to the seats.

I have mentioned before that speed was high wherever the track and curvature permitted, 75 m.p.h. being quite an ordinary figure. The 12 miles from Red Deer to Blackfalds were covered at 59 m.p.h. start to stop; in fact, the whole run was "snappy," with no dawdling anywhere. Stops were brief, getaways quick, and between stations only safety seemed to limit the speed. The streamlined chimney had an airduct discharging behind it, intended to carry the exhaust upward clear of the cab windows, but as the engine was working hard throughout the trip I could not judge the effectiveness of this device; the exhaust erupted like a volcano, not dribbling out as it does with an L.N.E.R. "A4" on "*The Flying Scotsman*" running at 15 per cent. cut-off! There was little 15 per cent. business on No. 3001. It was generally 25-30 per cent. though the throttle, I admit, was never full open as it mostly is on an "A4." Gradients and curves, though seldom severe, were plentiful, which makes the average running speed good, 43.6 m.p.h., bearing in mind the 19 stops, for which now allowance has been made.

After losing five minutes the train was back on schedule at about the halfway mark, Red Deer, and the arrival at Edmonton was punctual to the minute, 10.15 p.m. over the great high-level bridge. The riding of the engine was good, though naturally there was considerable rolling, chiefly on curves, and on one occasion this was nearly my undoing. I was standing near the open door, with legs well apart, making a note in my book, when No. 3001 gave a tremendous slam and lurch, due to hitting a bend I had not noticed coming. It slung me sideways clean through the door, only a blind clutch at something, which fortunately happened to be the door-jamb, saving me from a crash landing at 75 m.p.h. Nobody in the cab happened to notice this incident, luckily, as it did no credit to my intelligence and was entirely my fault. Standing in the open door, paying no attention to what the engine was up to, was a silly thing to do, and I should have deserved all I got, which might have been plenty! I have never done this since, and will not—never!

I liked No. 3001 very much, but I do think that for this particular kind of work another driving axle would have been useful. It did its job well, but after all this was a summer run, and in winter, in "20 deg. below" weather, with perhaps a blizzard blowing, things might have been different.

# The World's Biggest Broaching Machine

By John W. R. Taylor

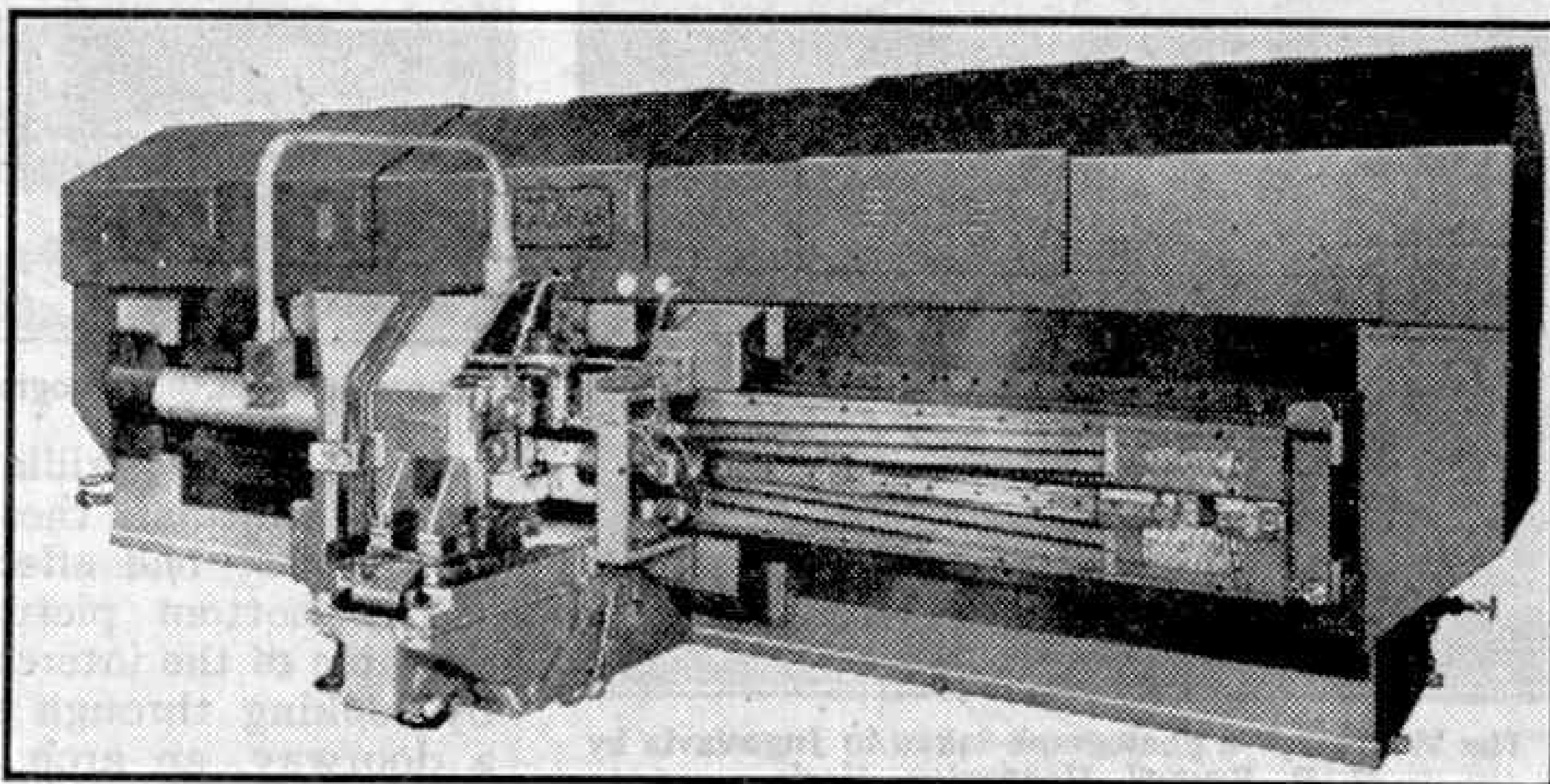
THE world's biggest surface broaching machine, illustrated on this page, has been delivered to the Standard Motor Company of Coventry by Weatherley Oilgear Ltd., a subsidiary of The Fairey Aviation Company. It weighs 55 tons, and by using it in conjunction with another machine of the same type Standard hope to be able to produce up to 1,000 engines a day for their new "Vanguard" motor car and the well-known Ferguson tractor. The Americans recently placed a contract for £12,500,000 worth of these tractors, the largest single export order yet received in this country and one which could only be filled quickly by using machines of this nature.

For the benefit of those who do not know what a surface broaching machine is—and that included me until I saw one being built recently in the Weatherley factory at Biggleswade—it is a cutting machine for accurately planing to size such things as engine crankcases. It does the same job as the more usual milling machine in about a quarter of the time. In this particular machine, the cutters consist of a series of about 40–50 blades each 8 in. long. They are connected together and staggered so that, when they are dragged across the face of a rough crankcase casting, the first blade shaves off a thin layer of metal, the second blade removes another layer and so on, the complete set of blades removing up to  $\frac{3}{16}$  in. of metal. This machine cuts to an accuracy of one thousandth of an inch, which is the tolerance required by the Standard Company, but an accuracy of up to two-tenths of a "thou" can be obtained if necessary.

Heart of the machine is the compact, American-designed Oilgear hydraulic motor, a very efficient "fluid power" unit. As this is a duplex machine, with a set of cutters on each side, two of these hydraulic pumps are used, driven by two 50 h.p.

electric motors. Each set of cutters is connected to a "ram" operated by one of the Oilgear pumps, which drags it across the face of the crankcase being machined. There are four such faces on every crankcase—the top, bottom and two ends; thus the whole job can be done by two machines, each fitted with two different sets of cutters.

The whole business is done automatically. The two broaching machines are installed next to each other, with a conveyor belt passing down one side of them, round the end and then back down the other side. All the operator has to do is to guide the crankcase casting from the conveyor belt



on to the work table of the first machine and then push a button; the broaching machine does the rest. When the operation has been completed, the casting is removed from the machine, put back on the conveyor belt and passed on to the second machine. The machining operations on all faces have been timed to approximate one another, giving a cycle time of 48 seconds each.

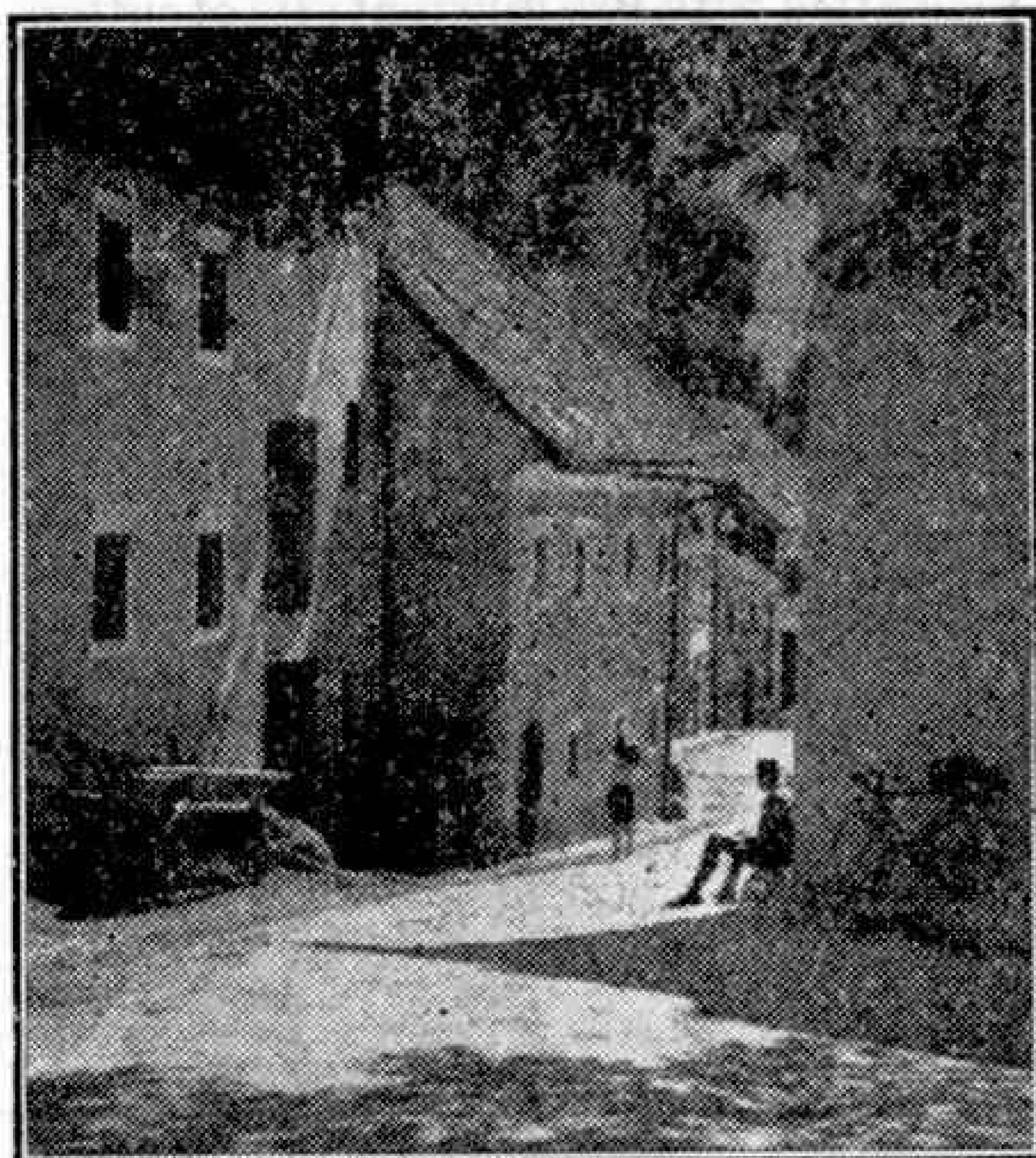
Simplicity of maintenance is a feature of the design, and the hydraulic pumps and electric motor can be inspected simply by removing the cowlings at the top of the machine. Only three basic types of cutter are used; once they have been set it is estimated that some 10,000 crankcases can be machined before re-sharpening is necessary, and then it takes only an hour to change the cutters.

Other machines built by Weatherley Oilgear Limited include injection and compression moulding machines for plastics and hydraulic presses.

# Photography

## Pictures in Sunshine

THE feature common to the three pictures we reproduce this month is sunshine. There is nothing specially remarkable about any one of the scenes, and they would all appear dull and un-



"The Watcher," a photograph taken in Yugoslavia by R. R. Bushell, Hoddesdon, Herts.

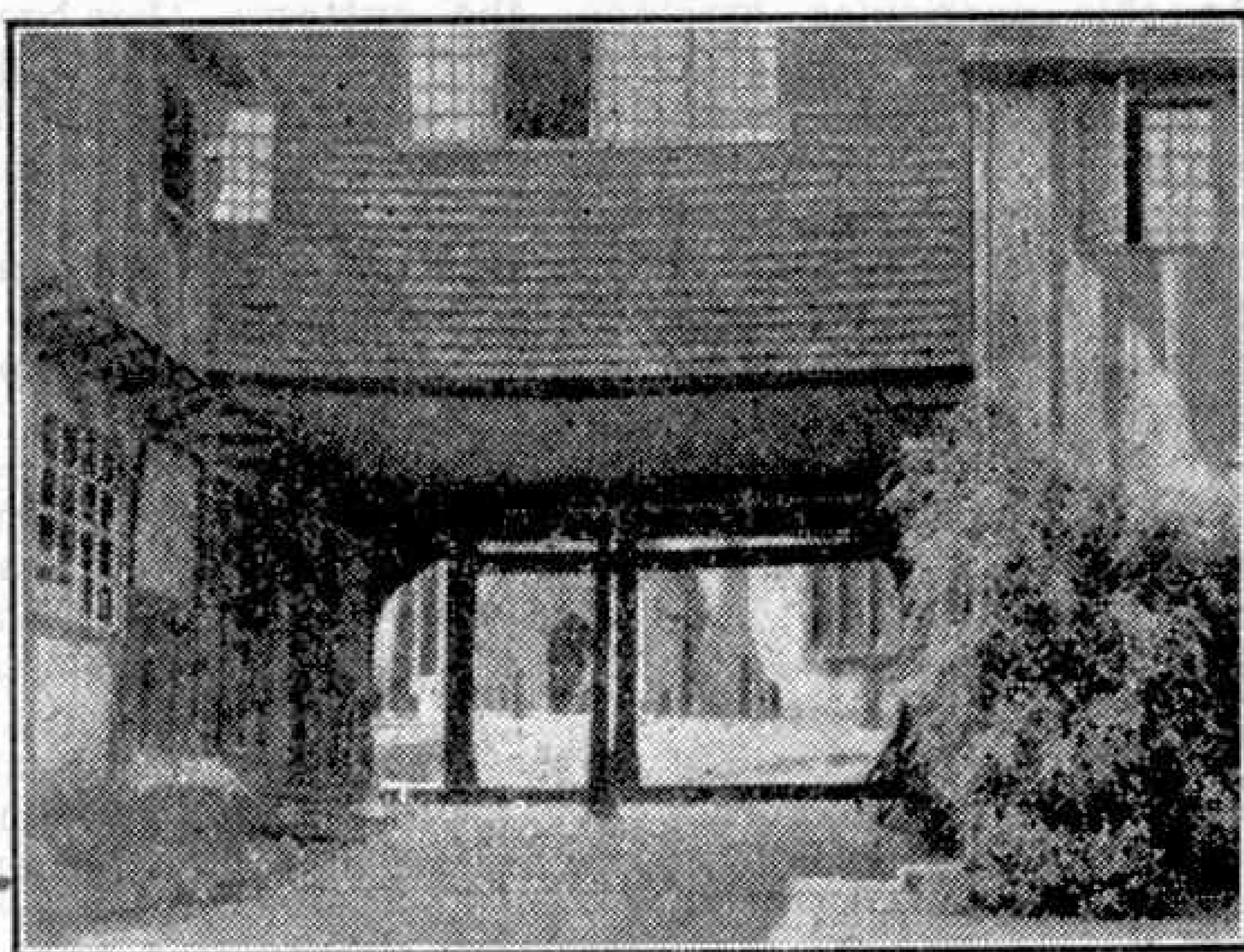
interesting but for the sunlight. The picture entitled "The Watcher" shows a blaze of sunshine—one can almost feel the heat; and the more gentle warmth radiated by the upper picture on the right is equally perceptible. This latter picture is worth careful study; note particularly the shadows, and the beautiful light effect on the heads of the man and the boy. Shadows play a more important part in sunshine pictures than we are apt to realise. Before taking any subject in brilliant sunlight, look round carefully for shadows, and if necessary change your viewpoint to avoid black masses that are not wanted. Sometimes a great improvement in a picture can be secured by waiting an hour or two so that the positions of the shadows change. Look



"Contemplation." Photograph by W. Crosland, Leeds.

out also for brilliant reflections from bright objects; these tiny searchlights give a very bad effect.

The bottom picture provides a good example of the interesting effects to be got by looking through something—railings, a doorway, an arch, or even a gap in a hedge. In the excitement of taking a sunshine picture do not overlook the importance of shading the lens.



"A Corner of Old England." Photograph by W. C. Brown, Hove 4.



# Club and Branch News



## WITH THE SECRETARY

### SCHOOL CLUBS AND BRANCHES

School Clubs and Branches give splendid opportunities to their members to carry on good constructional work that helps wonderfully in developing their general skill, knowledge, and power of initiative, and they play a very great part in the social life of the schools in which they are formed. In most cases they contribute impressive displays of Meccano models and well organised train layouts to the attractions of Speech Day and other school events to which parents and friends of the pupils were invited.

Finding suitable accommodation for the operations of Clubs or Branches is probably more difficult to-day than it was before the war. Where they are formed in schools there is usually no trouble in this respect, for a suitable class room, preferably a laboratory in which good tables and other accessories are readily available, can usually be allotted to meetings. A further advantage is that from the start a capable and energetic Leader takes charge of proceedings, for in general one of the masters occupies this post, in almost all cases with the Headmaster as President. The conduct of the Club or Branch is entirely under the control of these officials, and the rules are made with due regard to school discipline and requirements.

No school club can exist without a sufficient number of genuinely interested members. The first step in forming such a Club therefore is to make certain that there are enough pupils eager to enjoy the advantages of Club or Branch life. The next is to enlist the help of one of the masters, and before any active steps are taken the approval of the Headmaster must be sought. If necessary I shall always be glad to explain the aims and purposes of the Guild and of the H.R.C. to the Head of a school where the formation of a Club or Branch is proposed.

The Norbury M.C. is holding an Exhibition on the 19th. of this month at St. Oswald's Hall, Green Lane, Thornton Heath. There will be a display of Meccano models, and other exhibits will include Hornby and Hornby-Dublo layouts in operation, a Dinky Toys stall and various side shows and special displays. The Exhibition will be opened at 4 p.m. and the prices of admission are 6d. for adults and 3d. for children.

### CLUB NOTES

**NORBURY M.C.**—A special effort is being made to encourage model-building on Meccano Nights, when greater activity will be expected from members. The first event in this connection was a Lecture by the Secretary on "Meccano and Its Mechanisms." The Exhibition this month will include a special

display of models by Mr. Rodgers of the Southern Region, British Railways, a Dinky Toys Stall and other attractions. Club roll: 55. *Secretary:* P. A. Knights, 17, Linden Avenue, Thornton Heath, Surrey.

### BRANCH NEWS

**WATERLOO (DUBLIN)**—Normal traffic and the usual special services continue to be operated. A special timetable was introduced in March and April to take account of the difference of one hour in time between Northern Ireland and Eire during that period. A daily goods service has been restored on the Donegal-Killybegs section. Full working timetables and



Members of the Dawson Primary Boys' School (Dagenham) Branch No. 500. Mr. L. Buckingham, Chairman, Mr. S. Comber, Headmaster, and Mr. J. Brooks, Secretary, are seated in the centre of our photograph. This fine School Branch was incorporated in February 1947. It operates a splendid layout and its activities have won approval from its many influential supporters and visitors, while excellent reports of progress have been given in the Press.

instructions are issued regularly to members. *Secretary:* S. B. Carse, 38, Oakley Road, Ranelagh, Dublin.

**WEYMOUTH AND DISTRICT**—Plans have been drawn up for a new Branch Layout, and efforts are being made to provide further accommodation. These will involve taking up the present layout, and rolling stock and other material is to be overhauled at the same time. A signal cabin is being constructed by the Secretary, using a Brickplayer Outfit. *Secretary:* A. J. Brown, 68, Wyke Road, Weymouth, Dorset.

**HUNTINGDON**—The Branch Night has been fixed temporarily, and the number of meetings each month is to be increased as the Branch programme is developed. The Branch works in association with the successful Huntingdon M.C. *Secretary:* G. Kemp, The Old Bell, Brampton, Huntingdon.

### AUSTRALIA

**MELBOURNE**—Successful meetings are again being held, with the Leader's model railway as the centre of interest. Films and slides of many railway subjects also have been shown. Members construct accessories of all kinds for use on the Branch Layout. A dimming device gradually switches the lights on or off. *Chairman and Secretary:* Mr. Leonard Ison, 8, Hayes Street, Northcote, Melbourne, N.16, Victoria, Australia.

# Among the Model-Builders

By "Spanner"

## How to Use Meccano Parts Angle Brackets and Double Bent Strips

The Meccano Angle Brackets, although small in size, are exceptionally useful parts, especially the  $\frac{1}{2}'' \times \frac{1}{2}''$  type. These

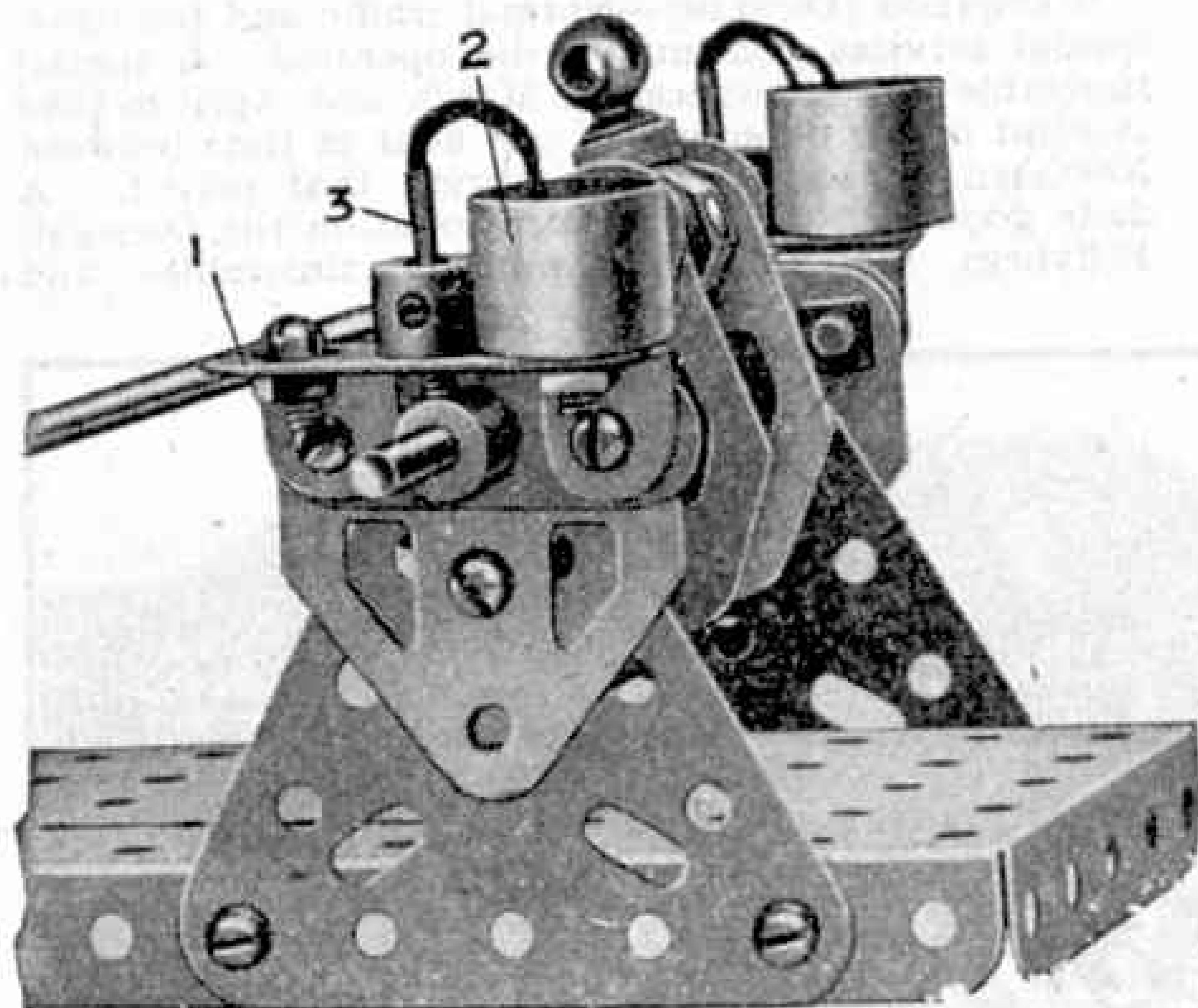


Fig. 1. This illustration of a simple lubricating system for a crankshaft shows a typical use for Angle Brackets.

are often used to connect Strips to form special girders and channels, and in building up special brackets that are not included in the standard parts. In Fig. 1 they are seen supporting Double Arm Cranks above the bearings of an engine crankshaft, in the construction of a simple and efficient lubricating system.

In Fig. 2 is shown an excellent example of a use for the  $1'' \times \frac{1}{2}''$  Angle Bracket. These parts have a slotted hole at the outer end of their long arms and this is often very useful. In Fig. 2 the elongated hole is put to good use in the construction of a differential gear.

A  $1'' \times \frac{1}{2}''$  Angle Bracket can be made even more adaptable by bolting a Fishplate through its elongated hole to the inner hole of the Angle Bracket. In this way the position of a Rod journalled in the slotted hole of the Angle Bracket can be varied as desired, within limits, in a horizontal direction.

Where a really strong connection is required between two Strips at right angles the  $1'' \times 1''$  Angle Brackets fill a useful function. They are also useful as bearings where only small power has to be transmitted.

The Double Bent Strip is another very useful and adaptable small part. It is designed primarily to form a reinforced outrigger or extended bearing for Axle Rods, and its use in this way is illustrated in Fig. 3. When bolted to a Strip or Plate this part provides a really good bearing, the Rod passing through the Double Bent Strip and the Plate.



Neil D. Horsley, Nottingham, a prize-winner in the "Winter" Model-Building Competition.

## Two Fine Model Cranes

We illustrate on the next page two interesting model cranes built recently by F. Coltman, Loughborough. One of these is based on an actual crane used in the building of an Egyptian dam, which was illustrated in the July 1926 "M.M." The model contains 1,200 nuts and bolts and weighs 56 lb. It will lift a weight of 20 lb. with ease. The crane is mounted on four two-wheel bogies, which are driven from a motor mounted in the swivelling super-structure.

The other

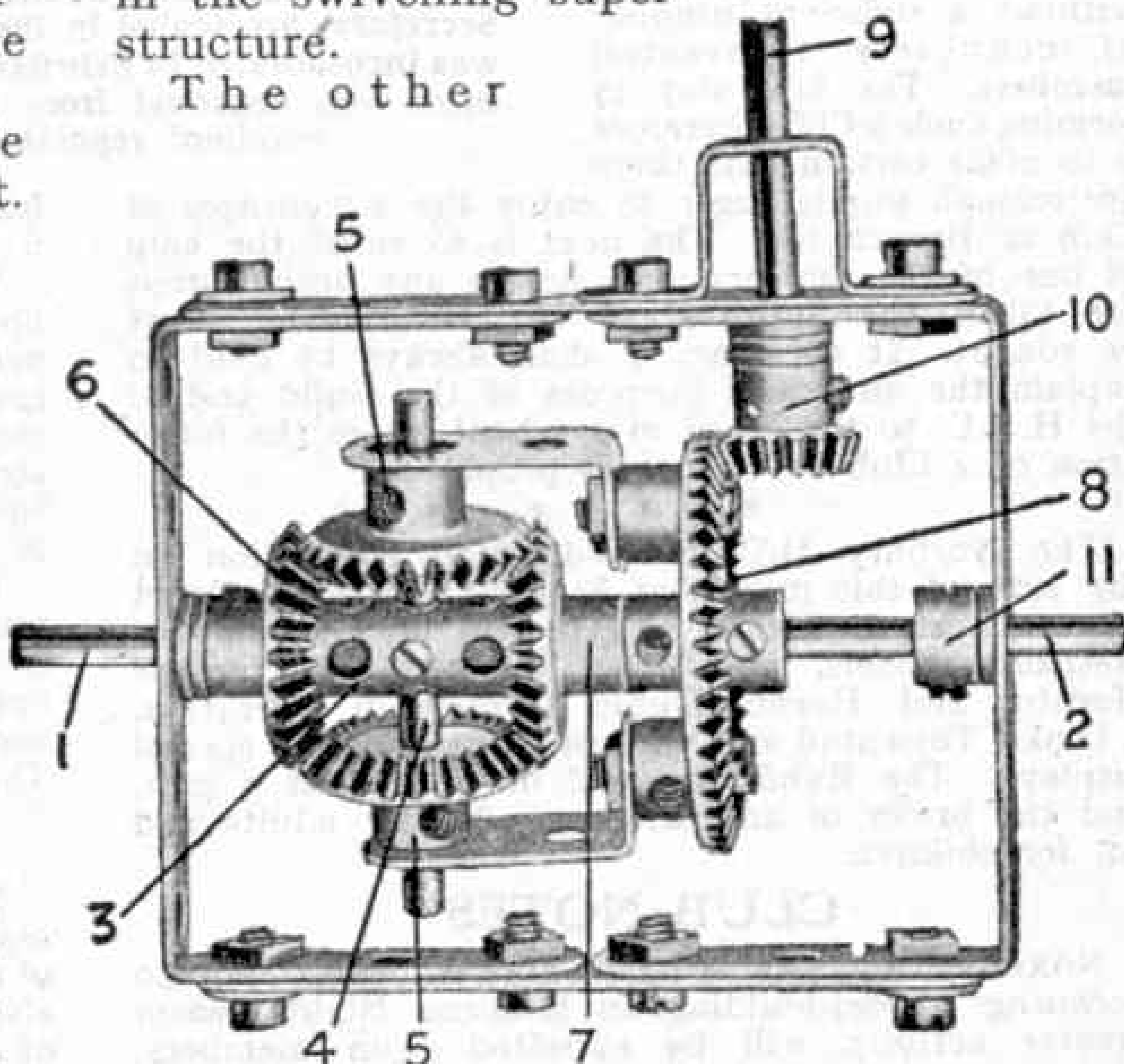


Fig. 2. The elongated hole of the  $1'' \times \frac{1}{2}''$  Angle Brackets is put to good use in this differential gear.

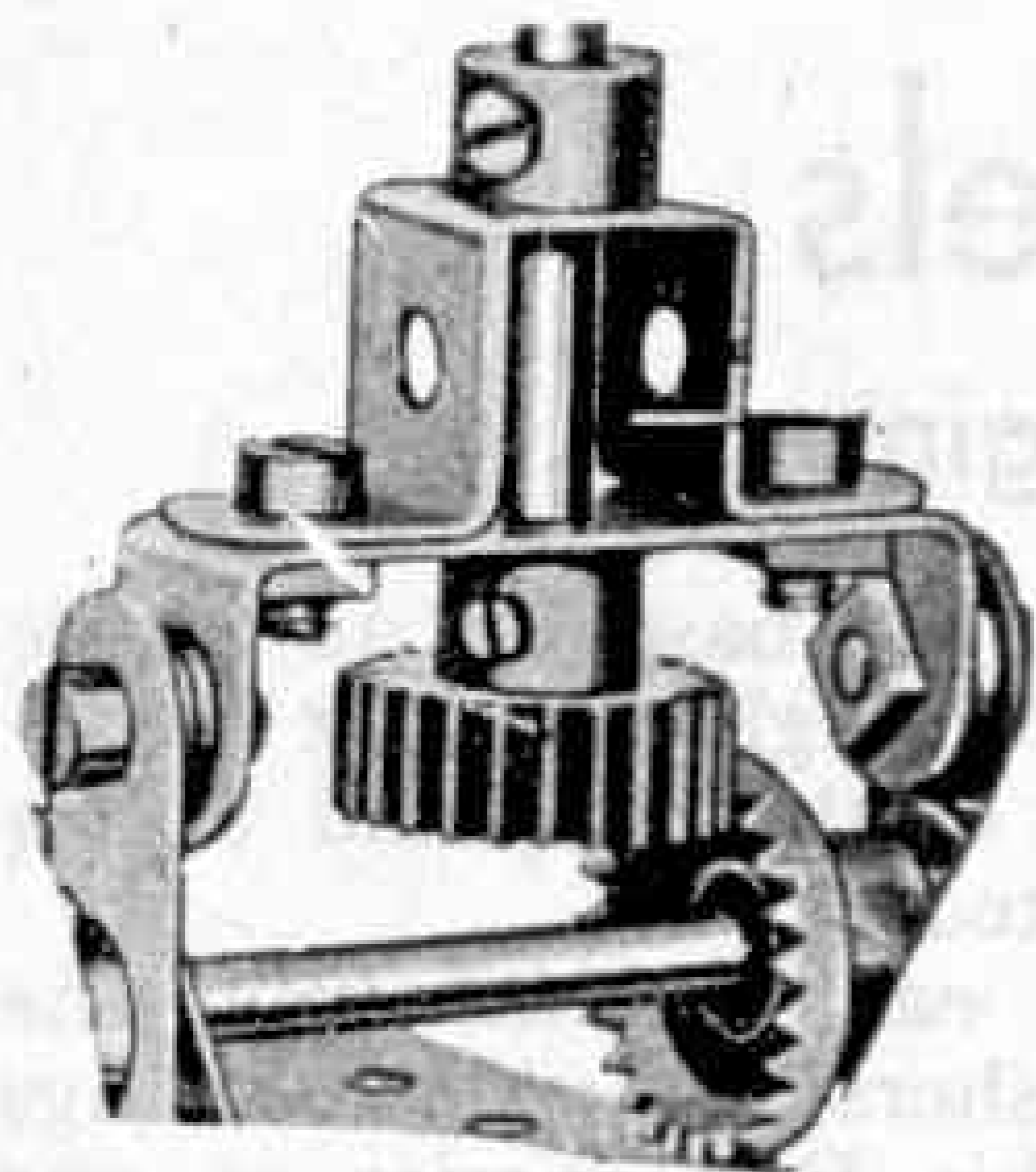


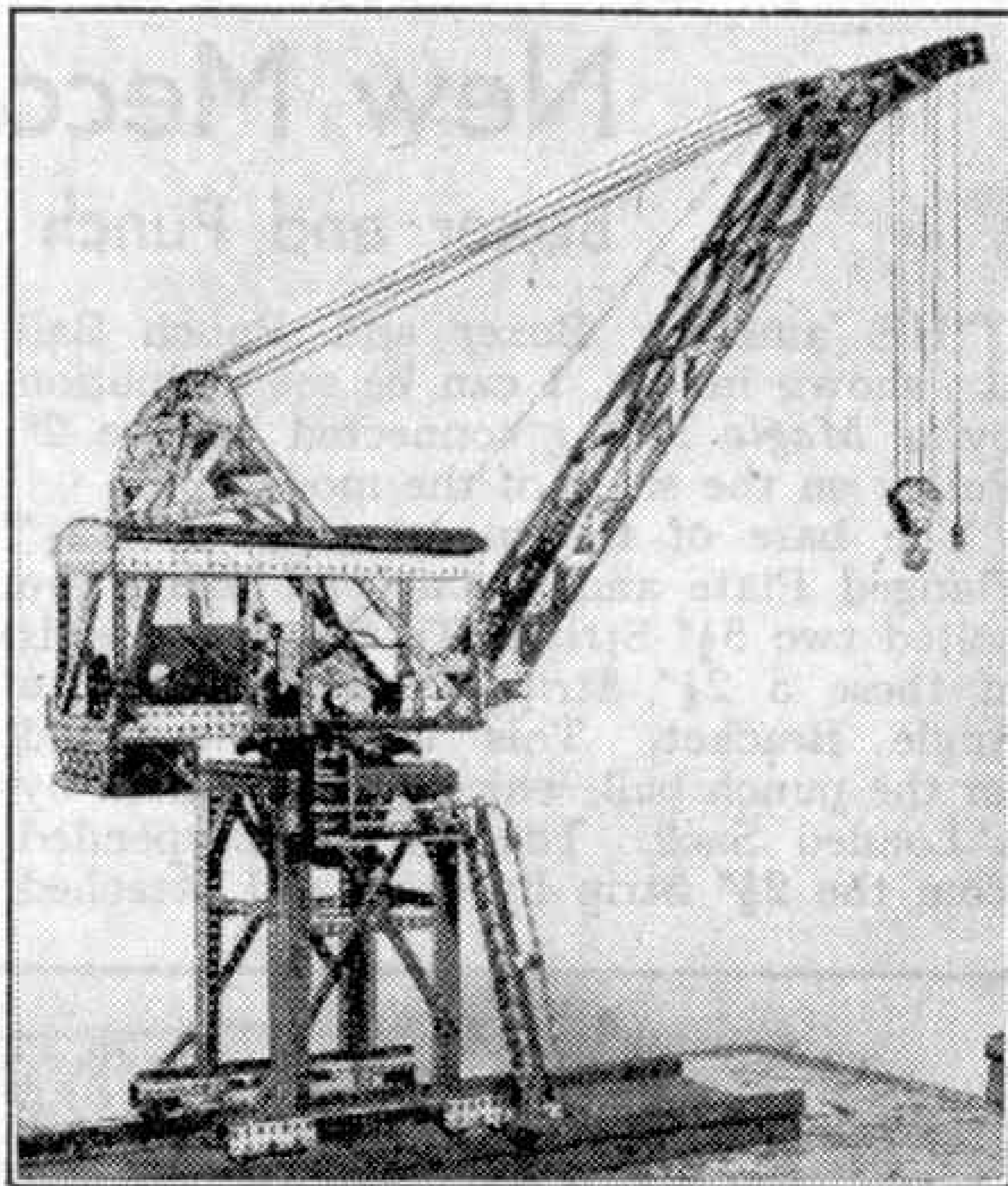
Fig. 3. A typical use for the Double Bent Strip.

model built by Coltman is a Craven 40-ton railway breakdown crane. The model contains 3,000 nuts and bolts, weighs 84 lb. and will lift a weight of 56 lb. The length of the truck is 3ft. 6 in. The crane is driven by a

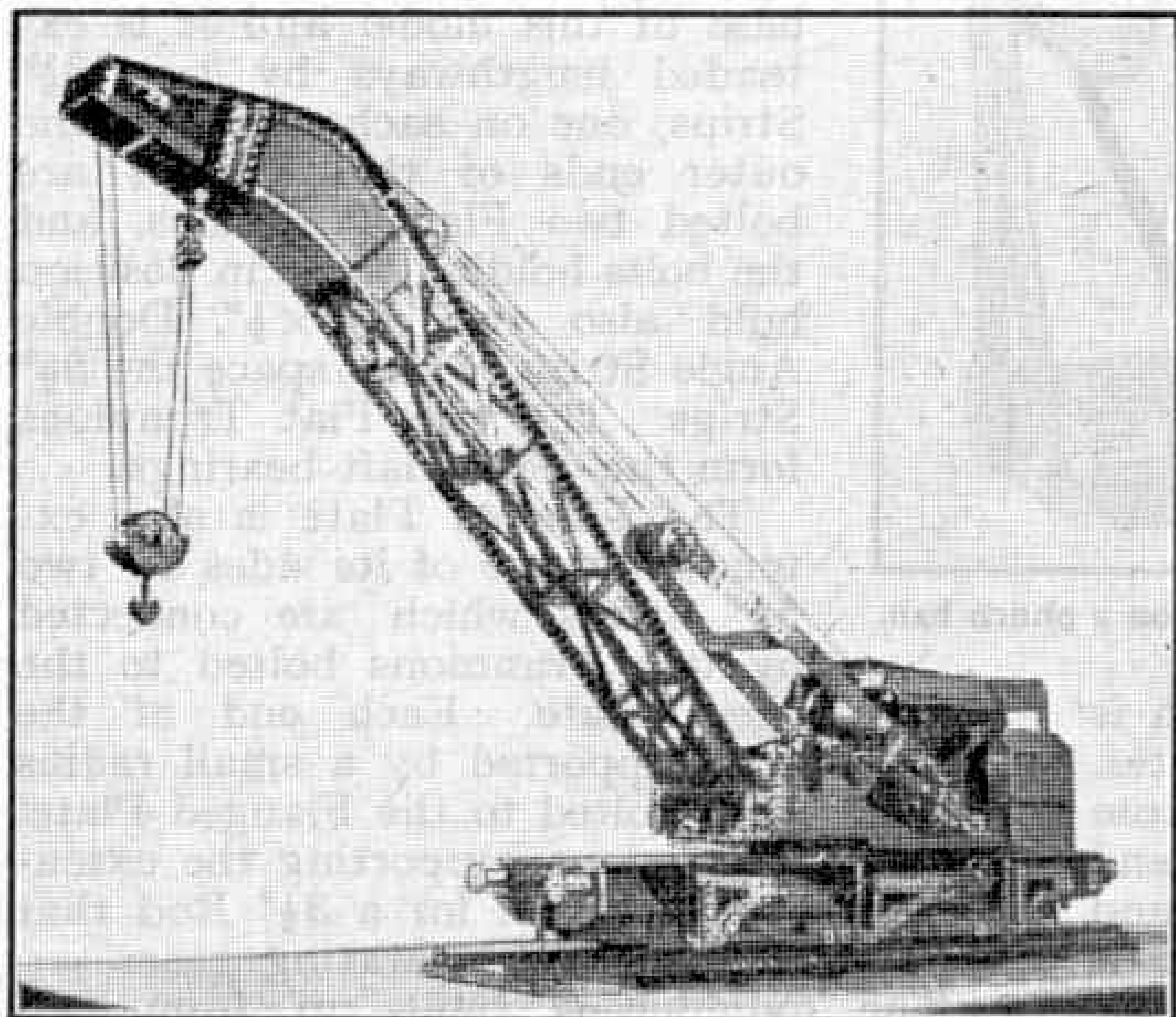
motor concealed in one of two water tanks, which are fitted one on each side of the crane.

An interesting feature of the model is its Craven type patent articulated jib. This is a special device that allows the jib to remain stationary in the centre of the match truck rest when the crane is traveling around curves in the railway track. The jib of an ordinary crane would move from side to side on the rest in such circumstances.

The actual cranes on which these models



Model of a giant crane used in the building of a great dam in Egypt. The model was built by Mr. F. Coltman, Loughborough.



Realistic model of a Craven 40-ton railway breakdown crane built by Mr. Coltman.

were based are products of Herbert Morris Limited, and the models were shown at a special exhibition organised by the Apprentice Club of the Herbert Morris Sports and Social Association. Members of the firm, who are normally engaged on the construction of the actual cranes, sent in models produced as the result of their leisure-time hobbies.

### A Compact Ratchet Free Wheel

In certain models such as Ferris Wheels, it is desirable to introduce some form of free wheel so that the heavy moving parts can be brought to rest gradually when the drive is discontinued. This is particularly necessary if a non-reversible worm reduction gear is incorporated in the drive. The simple free wheel shown in Fig. 4 will be found suitable in most cases.

The driving gear consists of a  $1\frac{1}{2}$ " Sprocket free to turn on the driving shaft of the model, and fitted with two  $\frac{1}{2}" \times \frac{1}{2}"$  Angle Brackets. The Angle Brackets engage the teeth of a Ratchet Wheel, which is fixed on the driving shaft.

A  $2\frac{1}{2}"$  Driving Band

is looped over each Angle Bracket and then passed around a  $\frac{3}{8}"$  Bolt held by nuts in the  $1\frac{1}{2}"$  Sprocket.

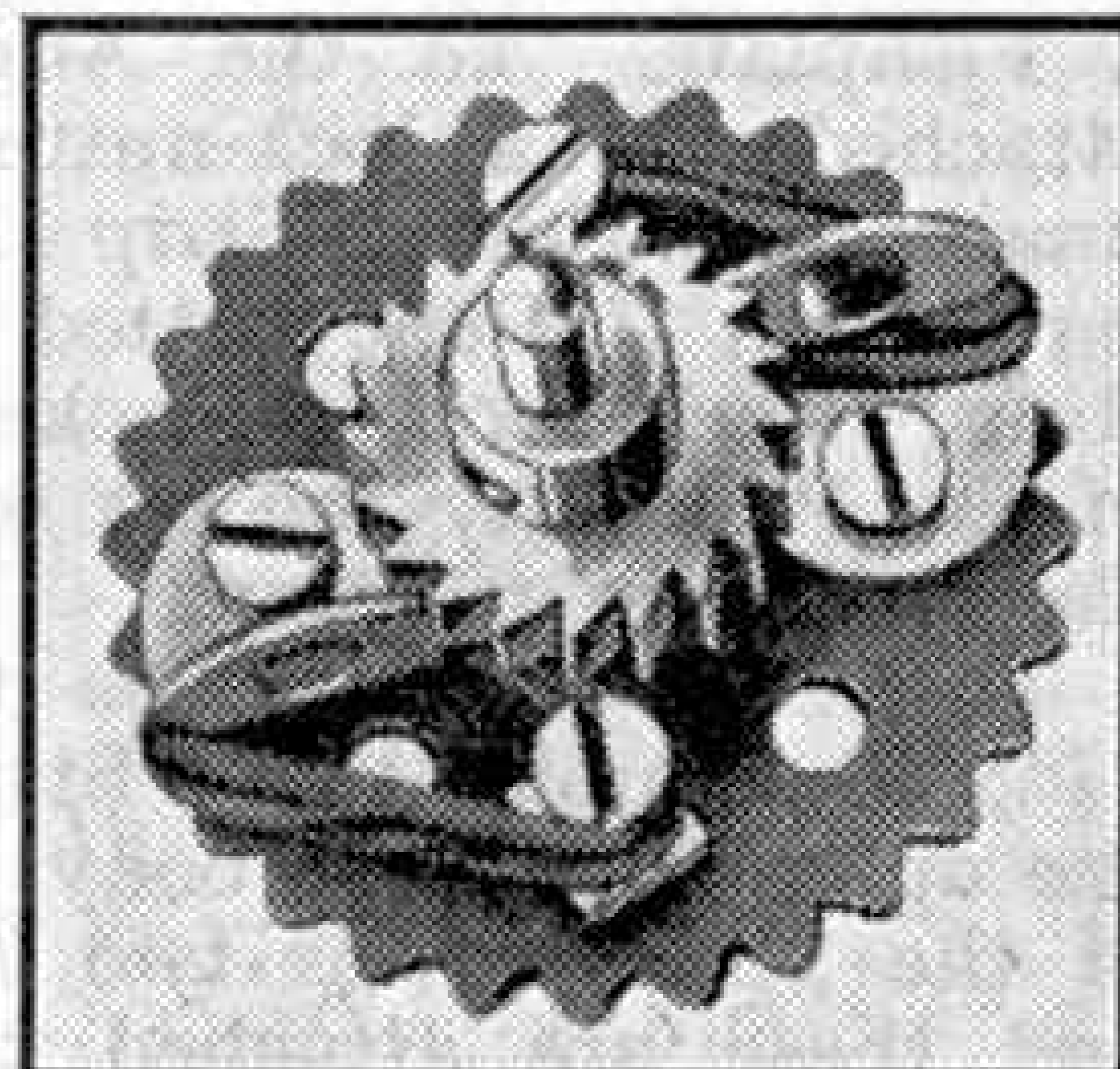


Fig. 4. A compact ratchet type free-wheel mechanism.

# New Meccano Models

## Boxer and Punch Ball—Steam Engine

THE amusing Boxer and Punch Ball shown in Fig. 1 can be set in motion by a *Magic Motor* connected to the 2" Pulley on the shaft of the model.

The base of the model is a  $5\frac{1}{2}" \times 2\frac{1}{2}"$  Flanged Plate and to one end flange are bolted two  $5\frac{1}{2}"$  Strips. To the upper ends of these a  $2\frac{1}{2}"$  Strip is attached by an Angle Bracket. This forms the stand for the punch ball, which is represented by a Loaded Sack. The Sack is suspended from the  $2\frac{1}{2}"$  Strip by Cord and attached

$2\frac{1}{2}"$  Strip fixed to the base by an Angle Bracket. Another Angle Bracket is attached to the rear of the body and to it a Fishplate 4 is bolted.

Two Trunnions, each spaced from the base by two Washers, provide bearings for a 2" Rod. This Rod carries at one end a Bush Wheel and at its other end a 2" Pulley. One end of a  $2\frac{1}{2}"$  small radius Curved Strip 5 is lock-nutted to the Bush Wheel and its other end is similarly attached to the Fishplate 4.

Parts required to build the model Boxer and Punch Ball: 2 of No. 2; 2 of No. 5; 4 of No. 10; 5 of No. 12; 1 of No. 17; 1 of No. 20a; 1 of No. 22; 1 of No. 24; 30 of No. 37; 6 of No. 37a; 9 of No. 38; 2 of No. 48a; 1 of No. 52; 1 of No. 90a; 2 of No. 111a; 1 of No. 122; 2 of No. 126; 2 of No. 126a; 1 of No. 155; 1 of No. 186a; 2 of No. 189.

Our second model this month is the simple Horizontal Steam Engine shown in Fig. 2. This can be built from Outfit No. 1. A  $5\frac{1}{2}" \times 2\frac{1}{2}"$  Flanged Plate forms the base of this model and it is extended lengthways by two  $5\frac{1}{2}"$  Strips, one on each side. To the outer ends of these Strips are bolted two Flat Trunnions, and the bolts holding these in position hold also two  $2\frac{1}{2}" \times \frac{1}{2}"$  Double Angle Strips, which space the  $5\frac{1}{2}"$  Strips. The two Flat Trunnions form the crankshaft bearings.

The Flanged Plate is also extended at one of its sides by two  $5\frac{1}{2}"$  Strips which are connected by two Trunnions bolted to the

the Flanged Plate. Each end of the extension is supported by a small radius Curved Strip bolted to the Flanged Plate. The two Trunnions supporting the extension provide bearings for a  $3\frac{1}{2}"$  Rod that represents the valve operating gear.

The cylinder is built up from two  $5\frac{1}{2}" \times 1\frac{1}{2}"$  Flexible Plates, bent to shape and bolted to the Flanged Plate. The Flexible Plates are joined at the top by a Fishplate. The end of the cylinder is a Bush Wheel, which is held in position by a Bolt 1 that passes through an Angle Bracket fixed to the base. The piston is a  $3\frac{1}{2}"$  Rod. The connecting rod is a compound strip formed by two  $2\frac{1}{2}"$  Strips, and at one end of this is attached, by a lock-nutted bolt, an Angle Bracket that is passed over the piston rod and held

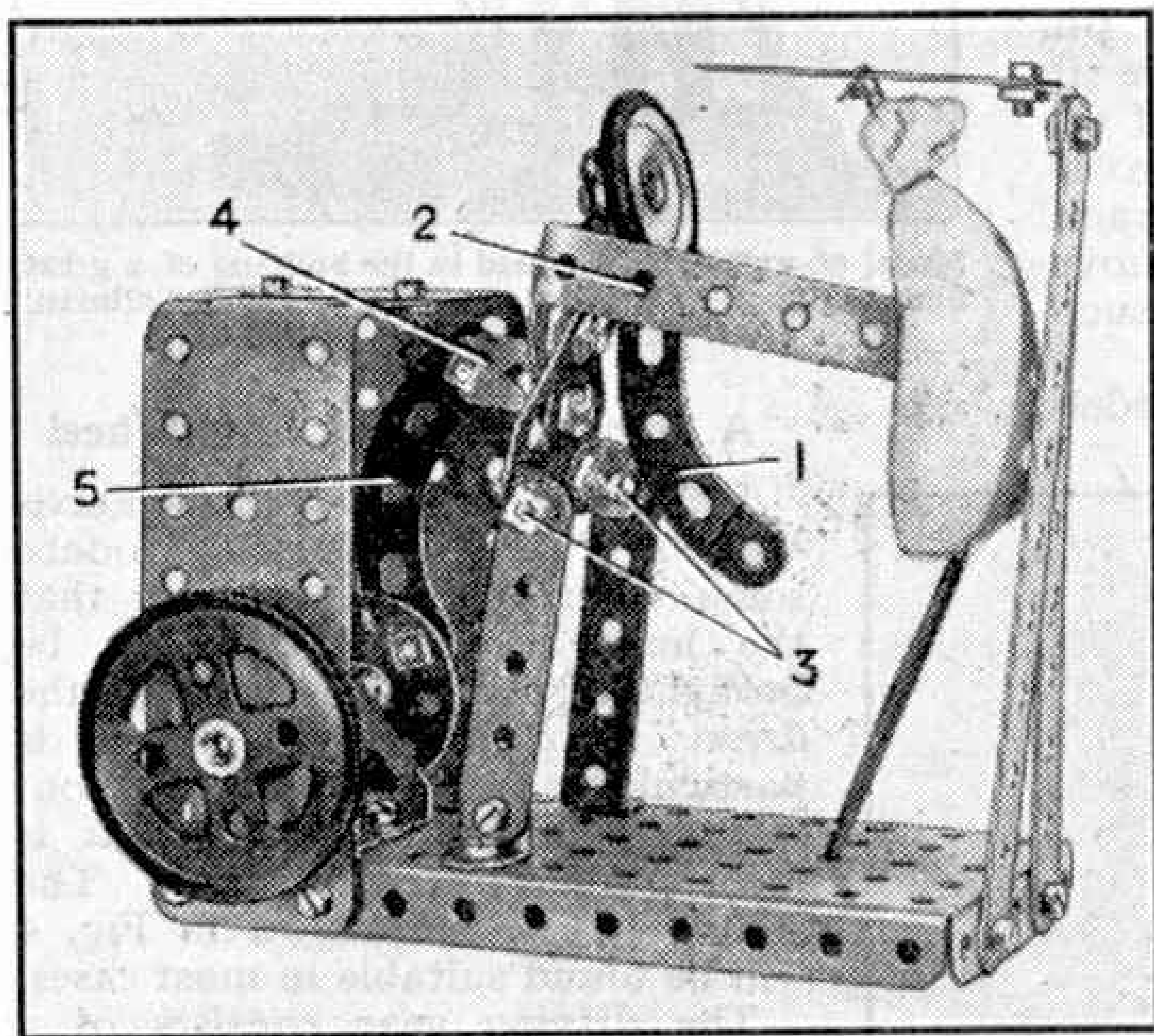


Fig. 1. An amusing model of a boxer practising on a punch ball. It is operated by a Magic Motor.

to the base by a Driving Band, which is gripped under the base by two Fishplates.

The body of the boxer is built up from two Flat Trunnions, to the upper end of which are bolted an Angle Bracket and a Fishplate. To the Angle Bracket is attached, by a lock-nutted bolt, a  $2\frac{1}{2}"$  small radius Curved Strip 1. The Fishplate supports a 1" Pulley fitted with a Rubber Ring. A  $\frac{1}{2}"$  bolt is locked in the boss of the Pulley by the set screw and holds the Pulley in position.

The arm that strikes the Sack is a  $2\frac{1}{2}" \times \frac{1}{2}"$  Double Angle Strip 2 bolted to the upper end of the body. The lower end of the body carries two Angle Brackets and these are attached to the legs by lock-nutted Bolts 3. One leg is a  $2\frac{1}{2}" \times \frac{1}{2}"$  Double Angle Strip, and the other is a

in position by two Spring Clips.

The crankshaft is formed from two 2" Rods 2 and 4. The Rod 2 carries two 1" Pulleys and the inner Pulley 3 has an Angle Bracket bolted to its boss. Two Washers are placed on the bolt in order to hold the Angle Bracket securely. The other 2" Rod, 4, also carries two 1" Pulleys 5 and 6. Each of these has an Angle Bracket bolted to its boss. The Bracket on Pulley 5 is held in a similar manner to the one on Pulley 3, but that on Pulley 6 is held by a nut and bolt. The connecting rod is pivoted on a  $\frac{3}{8}$ " bolt passed through the two Angle Brackets bolted to Pulleys 3 and 5. Three nuts are placed on the shank of the bolt so as to form a rigid crankshaft.

The Angle Bracket on Pulley 6 is connected to an Angle Bracket held on the valve operating rod by Spring Clips. Bolts 7 and 8 are lock-nutted. A *Magic* Motor bolted to the base by two Fish-plates drives the model.

Parts required to build the model Horizontal Steam Engine: 4 of No. 2; 4 of No. 5; 3 of No. 10; 6 of No. 12; 2 of No. 16; 2 of No. 17; 4 of No. 22; 1 of No. 24; 4 of No. 35; 37 of No. 37; 4 of No. 37a; 4 of No. 38; 2 of No. 48a; 1 of No. 52; 2 of No. 90a; 1 of No. 111c; 2 of No. 126; 2 of No. 126a; 1 of No. 155; 1 of No. 186a; 2 of No. 189; 1 *Magic* Motor.

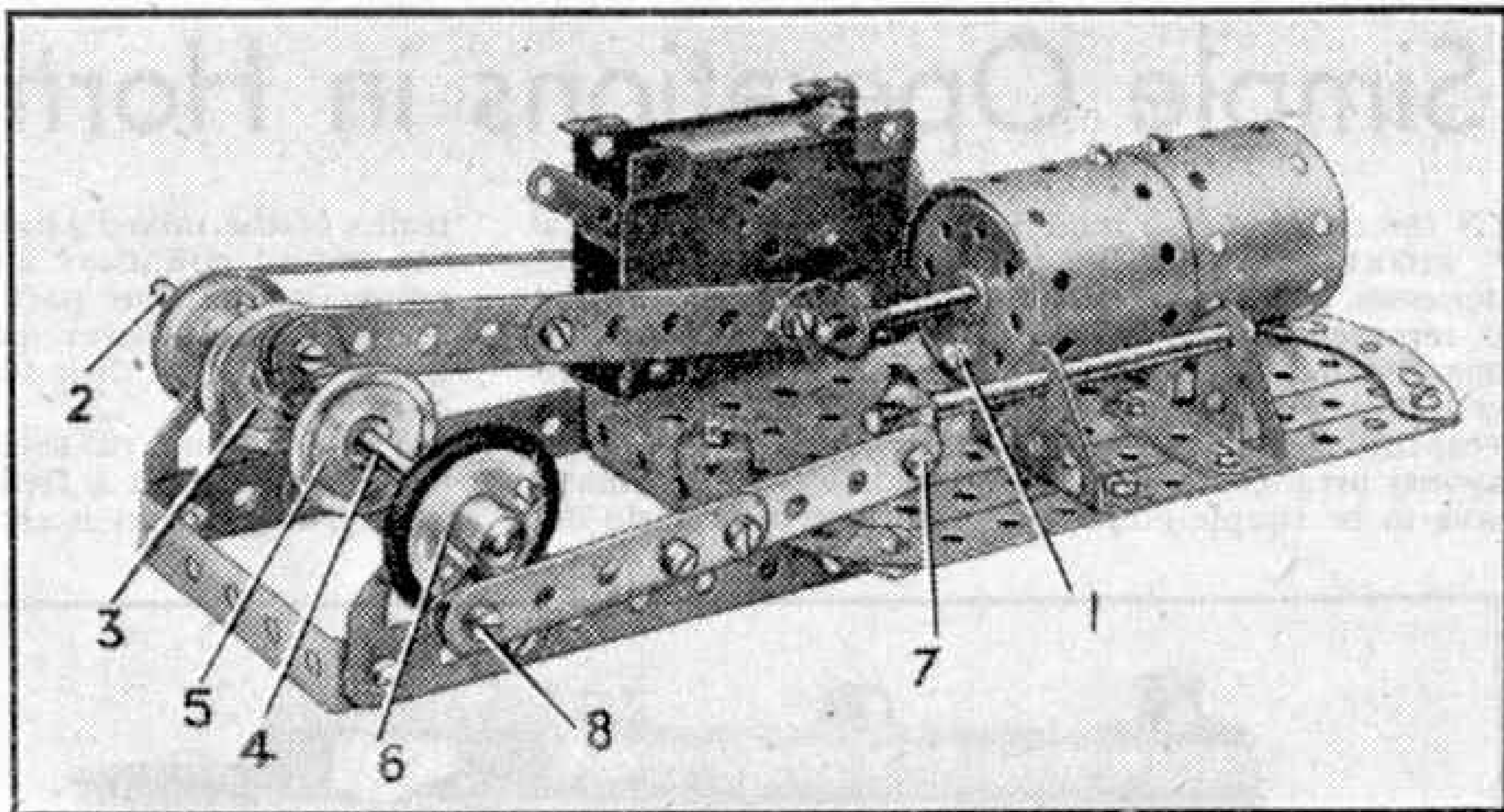


Fig. 2. A Horizontal Steam Engine built from Outfit No. 1.

#### NOVEL "MECCANO PICTURE" COMPETITION

The contest we announce this month offers a welcome change from ordinary model-building competitions, and is specially suitable for the summer when most boys wish to spend as much time as possible out of doors. At the foot of this page appears an illustration of an exciting incident in a football match! As a glance will show, this picture, with the exception of the trees, is made up of simple Meccano parts bolted to a piece of cardboard that serves as a background. Although the picture contains only a few parts, a very realistic effect has been obtained, and it appears to us that there is considerable scope for making other pictures in this way. We are therefore offering prizes for the most interesting and novel Meccano pictures of this kind submitted to us by readers of the "M.M."

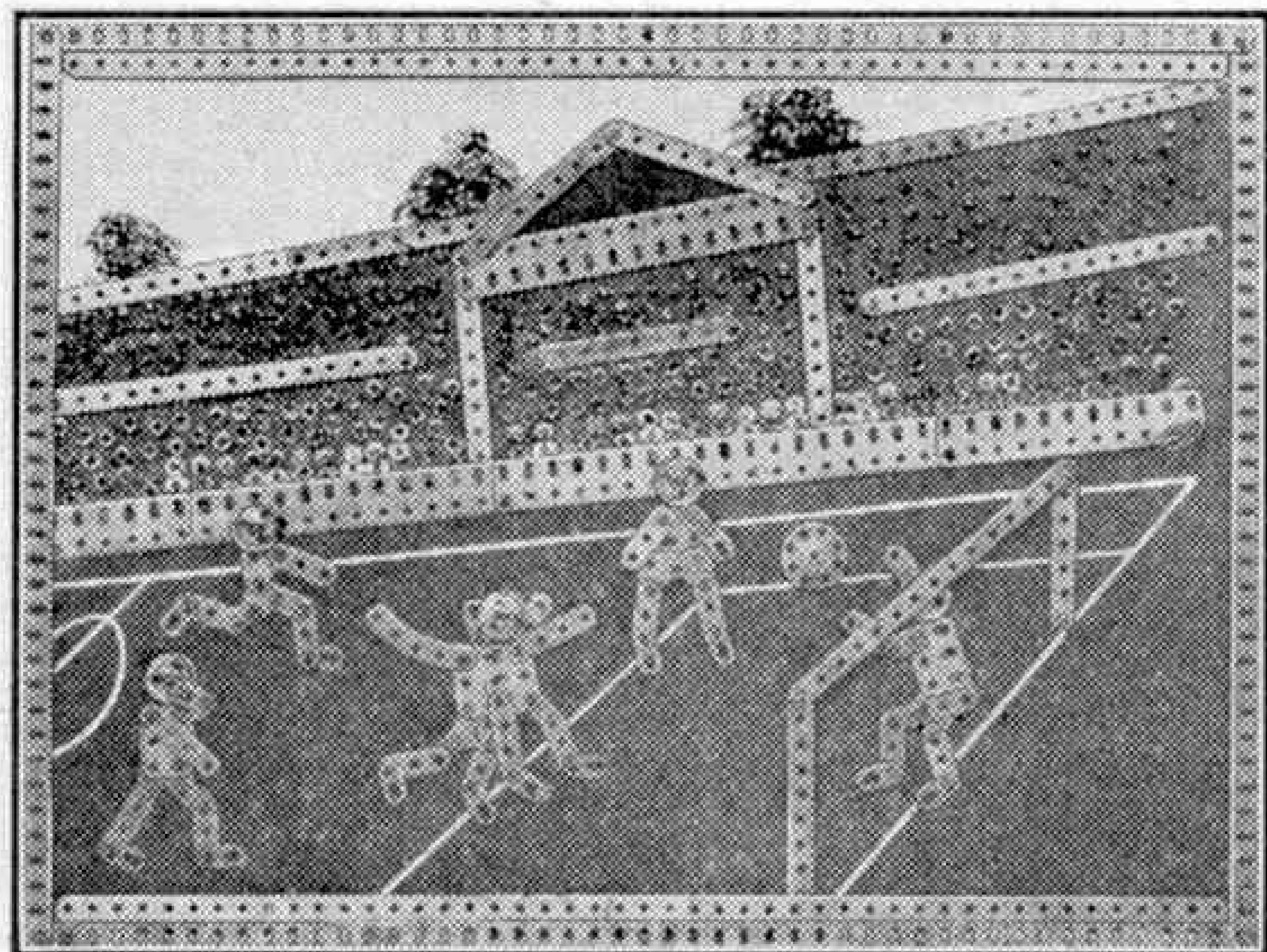
We hope that every model-builder will enter this contest, for it is great fun making pictures in this way, and there is always the chance of winning a cash prize. Readers may make any kind of picture they like best. A suitable subject would be a sailing ship at sea, with a lighthouse and a few rocks to complete the effect; or a picture of a street showing shops, and perhaps the outside of a big building such as a theatre or a church, would be fascinating to construct. A few minutes' thought will provide dozens of other ideas for making really good pictures, and there should be no difficulty in finding a subject suitable to the quantity of Meccano parts available.

Competitors who wish to increase the realism of their "pictures" may do so by painting the cardboard background in suitable colours.

Entries will be divided into two sections: A, for competitors living in the British Isles, and B, for competitors living overseas. The following prizes will be awarded in each Section. First: Cheque for £2/2/-; Second: P.O. for £1/1/-; Third: P.O. for 10/6. There will be also consolation prizes each consisting of a P.O. for 5/-.

After the picture is complete the competitor should obtain a good photograph of it or, if more convenient, make a neat sketch of it.

The competitor's age, name and full address must be written clearly on the back of each photograph or sketch sent in, and entries should be addressed to "Meccano Picture Competition, Meccano Ltd., Binns Road, Liverpool 13." The closing dates for the Contest are: Section A, 31st July, 1948; Section B, 30th September.



This amusing Meccano "picture" forms the subject of the novel competition announced on this page.

# Simple Operations in Hornby-Dublo

IN the running of a miniature railway system special attention is usually given to the long-distance expresses, and as far as possible the track is laid out to represent a main line. This is natural, for real long-distance trains have a special interest of their own that the model railway operator endeavours to recapture in miniature. There is much to be said for layouts arranged on simple lines, however. So many have to be simple nowadays, and they usually do not

trains of the mixed kind that are sometimes operated "to order" nowadays are those concerned with farm removals from one part of the country to the other. Some of these cover quite long distances, but they frequently begin their travel on a more or less remote branch.

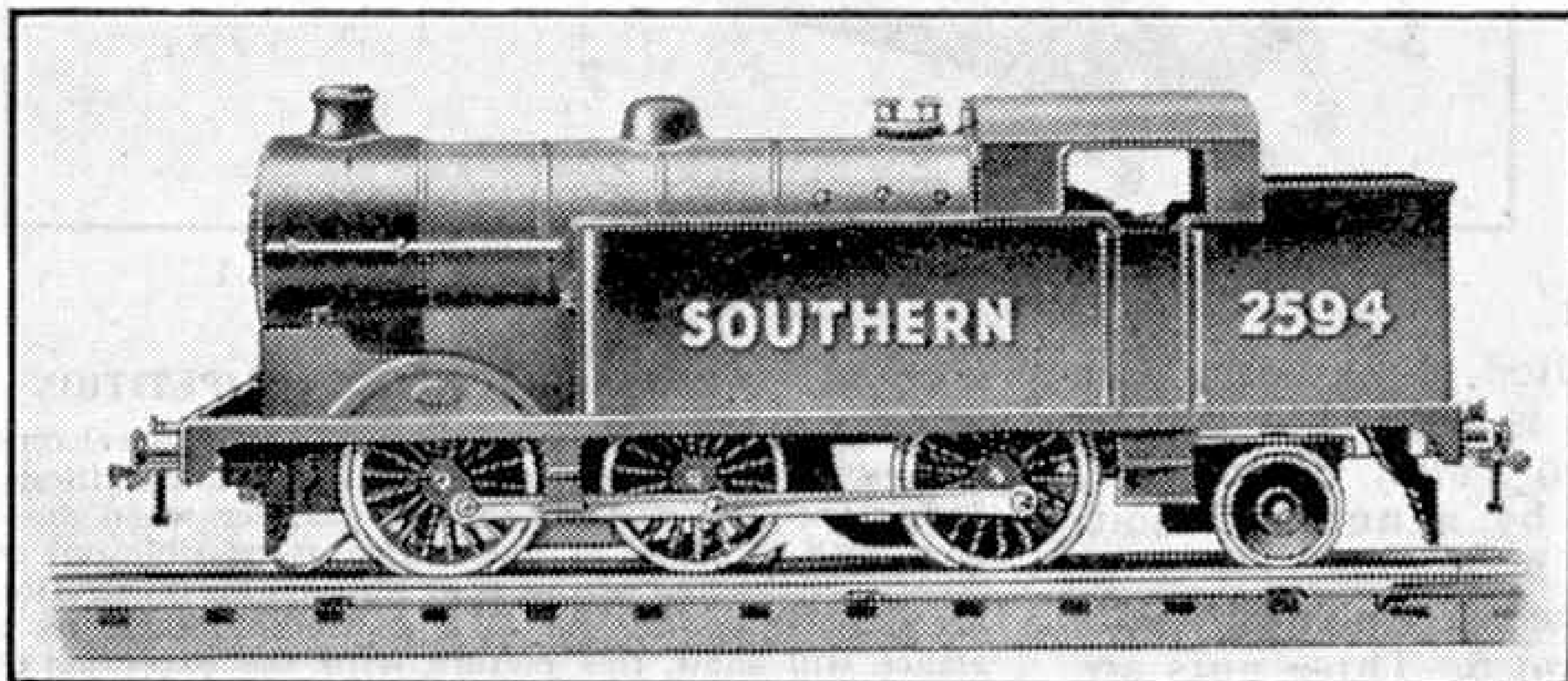
The make-up of such trains varies according to requirements, but a typical formation that is possible on a Dublo layout is shown on our lower illustration.

Behind the engine are several vehicles suitable for livestock, household effects and tools respectively. Then comes a horse-box and finally a passenger coach. In this particular instance the freight vehicles are all assumed to be "brake fitted" so that they can be coupled up like passenger stock and run as part of a passenger train.

There are various instances of regular freight traffic of a special nature originating on branch lines, and the running

of trains of this kind in miniature, as far as the selection of rolling stock on hand will allow, can be an attractive feature even on a simple layout. Trains for cattle or livestock and perishables generally and, less frequently, for horse traffic can all be provided for on Dublo systems.

Passenger traffic can be dealt with by means of a Dublo Tank and a single Coach where traffic is light. These can represent a real "push-pull" unit, so called because the engine hauls the coach in one direction and pushes it on the return journey. This method of working is useful because it avoids the necessity for the engine to run round the track at each end of the journey. It is of special advantage in miniature, as no points or loop lines have to be provided.



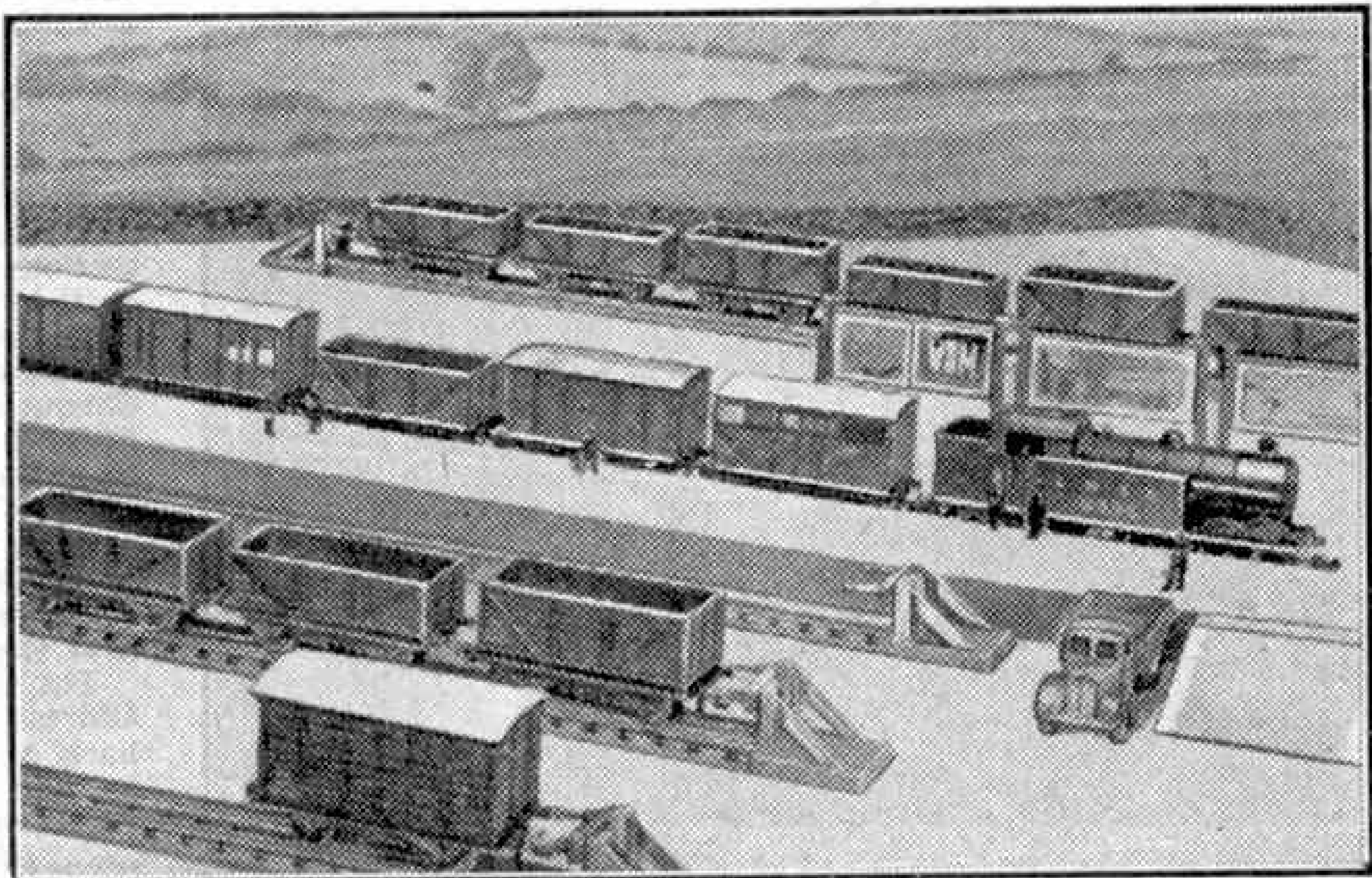
A Hornby-Dublo Tank Locomotive in Southern livery. This smart little engine is suitable for a wide variety of duties.

take up much room, so that they can be easily managed. There is, in addition, a great deal to be said for the planning of operations somewhat on branch or light railway lines, and the Hornby-Dublo owner with more or less simple equipment can carry out plenty of entertaining running.

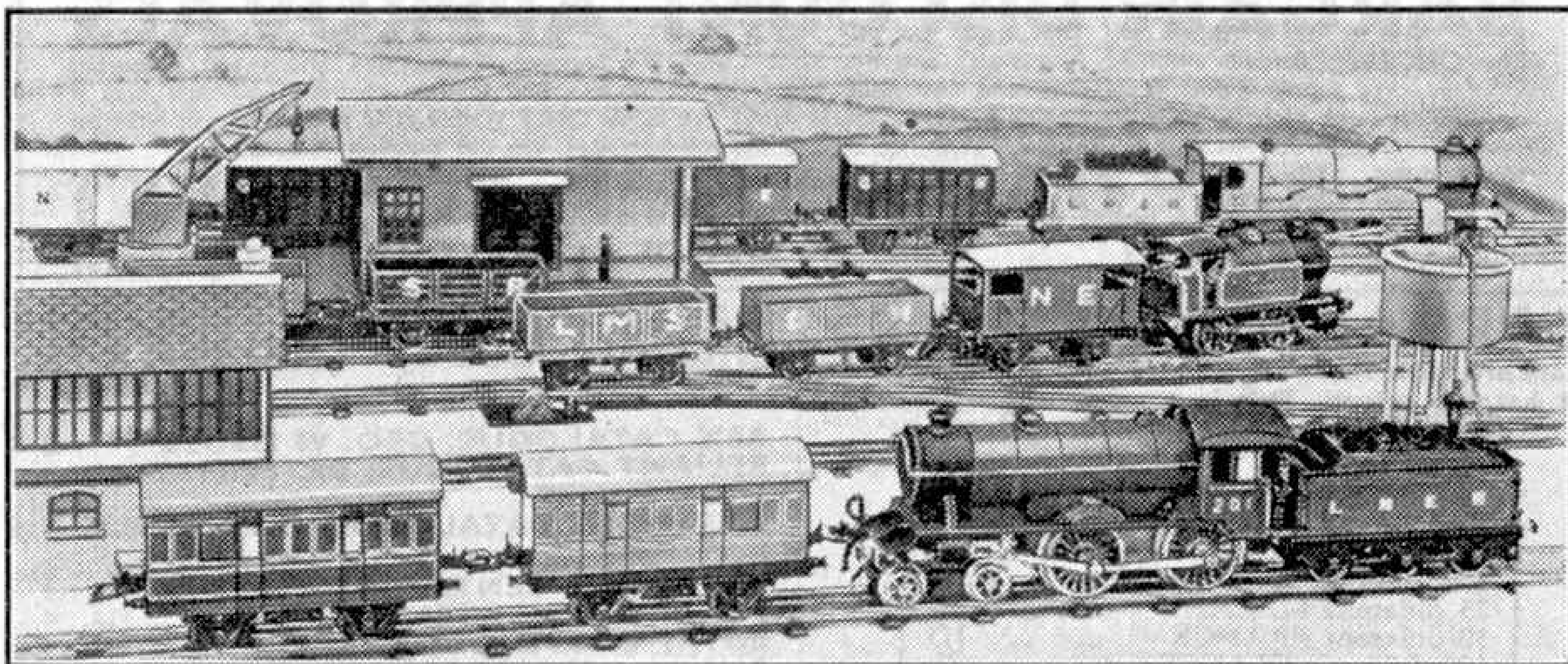
When a layout consists simply of a plain oval track, much of the fun of operating on it will depend on the different kinds of trains that it is possible to run. It might be thought that a layout of such a simple nature will not be very exciting, as the lack of points means that there can be no sidings, loop lines and so on. For a "one engine" system, a plain oval track can be quite suitable, however. Many real branch lines are very simple in layout and equipment; and in any case there are numerous long stretches of track, even on main lines, where there are no points at all.

The motive power on miniature layouts of the kind we are considering is readily provided by the Hornby-Dublo 0-6-2 Tank Locomotive. This is one of the handiest little engines imaginable. As it is a tank engine it can run quite well in either direction and it is equally at home on goods trains, passenger trains or even on that special branch line feature, a "mixed" train.

A mixed train is one which conveys both passenger and freight traffic. It consists of one, or possibly two coaches, followed by several goods wagons. Such a formation is unusual in miniature operating and the running of a train of this kind occasionally will add to the interest of the line. Special



A special mixed train on a Hornby-Dublo layout. It represents the farm removal train referred to on this page.



A Hornby goods yard scene with shunting and other operations in progress.

## Hornby Rolling Stock Couplings

A FAMILIAR Hornby Train advertisement used to say "*Shunting With Hornby Trains Is Fine Fun.*" This was quite true even in the days when plain single link couplings were used, and these had to be coupled and uncoupled by hand. Those who thought that using their fingers for this job was not realistic could always make use of the Hornby Shunter's Pole, a handy little weapon, based on the design of the real hooked coupling pole used by shunters in actual practice. But shunting operations are now greater fun than ever, for all Hornby rolling stock is fitted with automatic couplings of robust and effective design. Most readers will be familiar with the specially shaped hook with its large coupling link. Couplings of this type engage on impact when the wagons are pushed together, and this makes it easy for the Hornby Railway operator to assemble a train before its journey.

A particular advantage of the Hornby automatic couplings is that the same fitting is used at each end of a vehicle. Thus the couplings are "universal," and the wagons can be put on the track either way round. This is of special advantage, as individual vehicles may become turned in the course of operations.

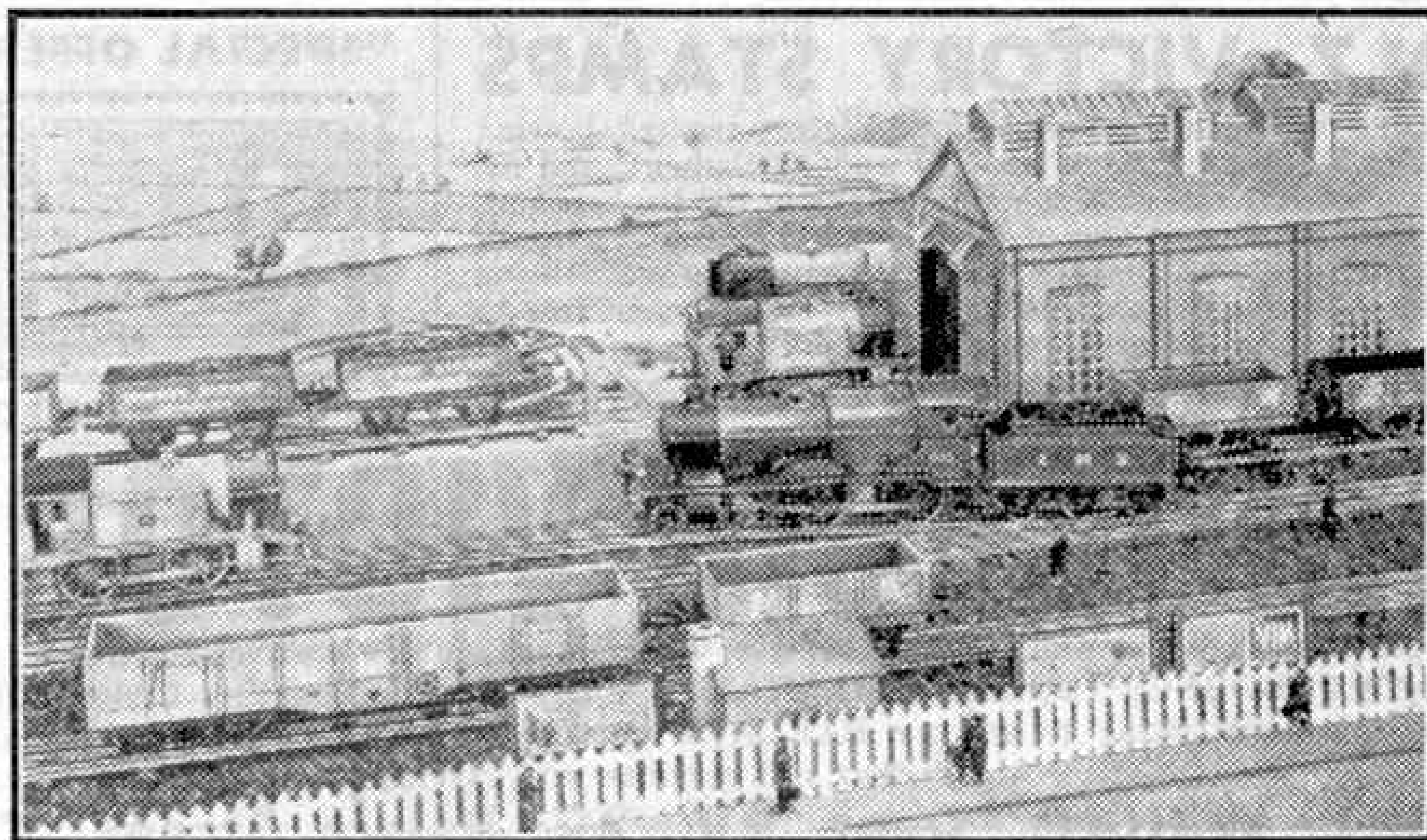
Although it is no longer necessary for the staff of a Hornby Railway to develop their skill in handling a miniature shunter's pole for coupling-up, there is still plenty of scope for nimble fingers in uncoupling operations. In actual practice uncoupling is invariably done when the train is stationary. Then the wagons are pushed by the engine until they are well on the move. The engine and those wagons still coupled to it are quickly retarded, while the uncoupled vehicle or vehicles roll on down the siding.

This cannot be done in quite the same way on a Hornby Railway, because immediately the engine started pushing, the couplings would automatically engage again, to the consternation of the shunter!

We must therefore cast about for a method of uncoupling that can be carried out while the vehicles are on the move. What we have to do is to knock the links upward clear of the hooks and to hold them up, as it were, until the vehicles have separated. If this knocking up is done almost at the same instant that the engine brake is applied the detached wagon will part company with the rest.

Practice is needed to perfect this operation, especially if separate operators play the part of driver and shunter respectively. Accurate timing and smart work are essential. A single operator is perhaps better off, provided that his train is not too long and he can conveniently manage the engine with one hand and the uncoupling with the other. Quite a good thing to use for the actual uncoupling or raising of the links is a Meccano Rod. It is not too big and yet it is of sufficient weight to give the couplings a smart tap upward at the right moment.

The rolling stock and track must be in good order for the operations and a length of straight track is the best place to carry them out. Wagons must be free running and the couplings must be well adjusted so that the links move freely.



A busy locomotive depot on a large Hornby layout.

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# Stamp Collecting

## The Isle of Woods and Rivers

By F. Riley, B.Sc.

OUR stamp story of the West Indies brings us next to Jamaica, the largest and most valuable of British possessions in that region. The island is nearly 150 miles long and almost 49 miles across. It was discovered by Columbus, who a few years later stayed on it for almost a year after the storm-tossed ships in which he made his last tragic voyage had been driven ashore in what is now called St. Anne's Bay, on the north coast of the island.

Later the Spaniards took possession of the island, and the original inhabitants, Indians of a gentler nature than the fierce Caribs of other West Indian Islands, then gradually died out, and were practically extinct when Jamaica became British little more than 200 years later. There is what appears to be a reminder of their existence on the 1d. stamps of the pictorial issues of 1919 and

1921, both of these showing an Arawack woman preparing cassava, an edible root.

The name of the island itself is another reminder. Columbus called it St. Jago, but the present name comes from the Indian Xamayca, which means the Isle of Wood and Water. This description is apt, for from the central mountain range, which in the Blue Mountains rises to a height of

7,388 ft., 70 or more rivers run down to the north and south shores of the island. Only one of these, the Black River, is navigable, and that only for very small craft. Another is shown on the 2½d. stamp of the issues of 1932 and 1938. This is the Wag Water River, the name of which is a corruption of the Spanish Agua Alta. On its banks there are famous botanical gardens full of tropical plants, and spice and fruit trees.

Jamaica became British almost by accident. Cromwell sent an expedition against the Spanish possessions in the West Indies that failed in its main objectives, but succeeded in taking possession of Jamaica, which has remained British ever since. The Spaniards were soon driven out, and the next stage in its history came with the rise of the buccaneers, who carried out their piratical schemes on a large scale in Caribbean waters during the war with Spain. They continued after the war too, and then had to be

suppressed.

The principal harbour of Jamaica is at Port Royal, and this figured prominently in British naval history in subsequent years. Admiral Benbow was buried in Kingston, now the seat of Government, when he died following on wounds

received during his great fight with a superior French fleet in 1702. The most outstanding event in the island's history during this period, however, was the threatened invasion in 1782 by the combined fleets of France and Spain. These were crushed by Rodney in his great victory off Dominica, which was celebrated by the erection of a statue of the Admiral in Spanish Town, then the capital. Later it was removed to Kingston. This memorial is shown on the 2/- value of the 1919 issue, which also includes representations of two other Jamaica monuments. One of these, on the 3/- value, is the statue of Sir Charles Metcalfe, a famous Governor; the other, on the 1/- value, is one of Queen Victoria, to whom the title of "Lady Supreme" of Jamaica is given.

It will already have been gathered that Jamaica has seen the issue of several comprehensive and interesting pictorial sets. In addition to the stamps already referred to, the 1919 issue included others showing the Cathedral and the King's House in Spanish Town, one illustrating the Jamaica Exhibition of 1891 and two associated with the war of 1914-18, showing respectively troops setting out from Jamaica for the

scene of the fighting and a war contingent returning. Many of the designs of this set were reproduced in the

succeeding issue, which also included an excellent picture of the town and harbour of Port Royal in 1853, with many fine ships at anchor.

An interesting break was the appearance in 1923 of three stamps sold at a premium of ½d. for the benefit of the Child Welfare League. These child welfare issues actually were on sale from 1st November to 31st January every year from 1923 to 1927. A

return to pictorials was made in 1932 with three excellent stamps, and other such issues came in 1938 and 1946. Most of the island's pictorials are in two colours, and provide collectors with material for brilliant displays in their albums while having the genuine stamp interest that is essential. There were portrait stamps in addition, the earliest issued in 1860. Some of the Victorian portrait stamps are highly priced in mint conditions, but apart from rare varieties they can be obtained used without a very great outlay, so that any reader who wishes to specialise in one particular country could quite well select Jamaica, the stamps and posts, of which are well worth study.





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**3d. ea.:** \*2, \*3, 32, 34, 49, 66, \*96, 96, \*97, \*98, \*112, 112, 113, \*124, \*125, \*126, 023, 024, 026, 040, 065, 0112, 0113, 0114, \*0129, 0129, 0134, 0135, \*0141.  
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**6d. ea.:** 5, \*19, 19, \*20, 22, 23, 69, 82, 86, 99A, 100A, \*101A, 114, \*116, 116, \*117, 117, \*118, \*119, 119, \*128, \*129, \*130, 025, 041, 042, 061, 064, 085, 086, 087, 0116, 0116A, 0117, 0117A, 0118A, \*0130, \*0134, \*0135, \*0136, \*0145, \*0146, \*0147.  
**9d. ea.:** \*4, 4, 6, 37, 68, 85, 101A, \*103, \*131, \*132, 027, 066, 0100, 0119A, 0120A, 0121A, \*0148, \*0149.  
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# Stamp Gossip and Notes on New Issues

By F. E. Metcalfe

OUR own Commonwealth stamps are well to the fore this month. As was to be expected, the British "Silver Jubilee" and the Channel Islands pair have focussed more attention than ever on our own issues, not only at home, but overseas as well. British dealers with export connections in the U.S.A. report good sales over there, which is all to the good, for whereas Great Britain has been in need of a £1 stamp ever since air postal rates soared, the production of the "Silver Jubilee" high value was obviously



aimed at getting a few of those precious dollars. Apparently the idea has produced a few, but there has been a good deal of grumb-

ling about the exploitation of collectors. Commemorative sets of low face value are desirable from all points of view, but £1 stamps should be taboo from now on.

Of the new stamps issued since last month's notes were penned, the two air stamps from Eire are worthy of special mention. Hitherto many collectors have not thought much of the designs of Eire stamps or even of the productions themselves, but the two air stamps which were put on sale early in April are up to any standard, although the colours are a bit wishy-washy.

A set which is frankly disappointing is the "Postal Centenary" set of Mauritius. When advance illustrations of the set of four were first shown, it looked as though the stamps would be handsome indeed, but however attractive the design may be, the colours used clash so much that, as one lady collector said, they are simply horrid. The set is proving popular enough and the quantities taken up by dealers and collectors alike will prevent them ever emulating, even remotely, the value of their prototypes.

A collector has asked what stamps are being used in Japan to-day, and the one we are illustrating—it was taken from a letter recently received—may be of interest to more than one. Much correspondence passed between Great Britain and Japan before the war, and many collectors were able to get used stamps cheaply, which gave them a certain popularity. Now letters are relatively few and the collecting of Japanese issues has fallen to zero. All this does not mean that Japan is not producing new stamps; as a matter of fact more than ever are coming out, and as business relations are gradually being established, collectors can look forward again to artistic productions of the kind that charmed them once upon a time.

Hungary is



another country that has suffered somewhat in popularity, with little reason, for Magyar stamps are not only artistic but quite easily come by, and the latest set is so beautifully produced in photogravure that many collectors will be interested. Moreover its price is not beyond the pocket of anyone. Four values have appeared up to the present, and the set

has been issued to commemorate the great rising in 1848. The French revolution of that year inspired the Hungarians, who wrote many pages of glorious history in the next few years and attained complete success in 1867.

Another collector interested in the new stamps of Bahawalpur asks for information regarding this country. Well the state of Bahawalpur has an area of about 17,000 sq. m. It is situated in the Punjab, and while it is not very rich country—over 10,000 sq. m. of the territory are desert—the latest set of stamps to 10 rup. would lead one to believe that it is a very important place indeed. Anyhow the stamps are really beautiful and a great credit to the printers, Messrs. De La Rue, London.

With our Indian Empire in the melting pot, it was to be expected that countries like Bahrain and Kuwait would have to do something about their stamps, which were overprinted Indians. So the news that our own British issues were to be overprinted for use in the Persian Gulf was not surprising. Still the secret was well kept, and it was only when the stamps were actually on sale that collectors knew just what was going to happen. Only stamps up to 5/- are to be sur-

charged. Muscat also has been provided with stamps, though in this case the name of the country itself has not been overprinted; only the currency has been surcharged.



It will be remembered that in 1944 Muscat was provided with a set of overprinted Indian stamps to commemorate the bicentenary of Al-Busaid. This latter set is rather beyond the pockets of a junior collector, but the new surcharged stamps will be well within their reach.

Sudan stamps were very popular with British collectors and were readily obtainable while this country was within the sterling area. Now that it is outside our block, mint stamps are difficult to import, but the recently issued stamps will eventually come on to the market in used state. Mint are always likely to be scarce, and advantage should be taken of any offers of mint that may be seen.

Early in June new stamps are to be expected for Singapore, Penang and Malacca, and this will put an end to the "BMA" issues of Straits Settlements. There have been many printings. The lower values are cheap and painstaking collectors will find these stamps well worth study.

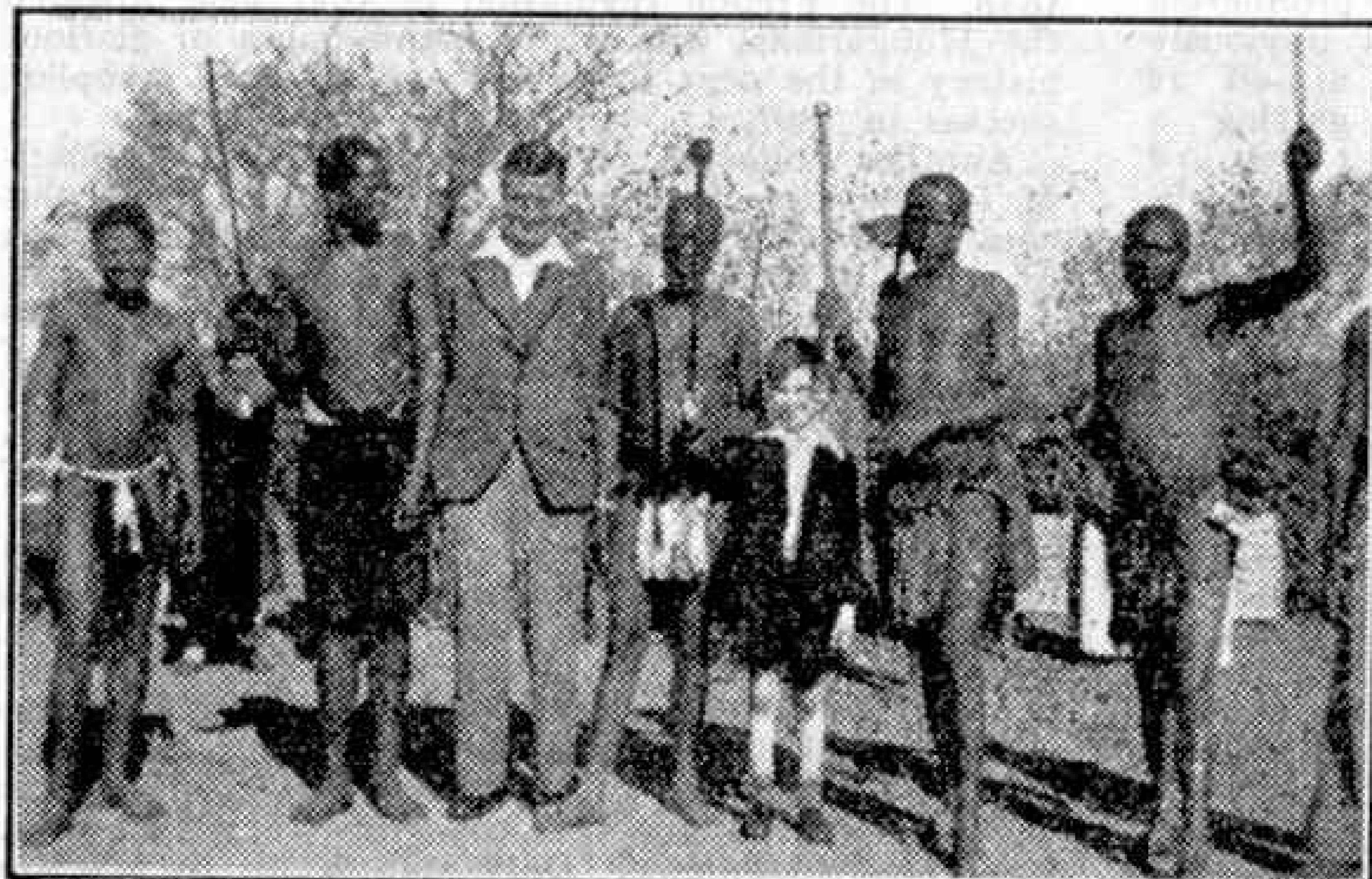
And now a tip for the month. Not everybody's meat are the stamps of Gwalior, but if you can pick up a mint copy of the 9p (No. 140 S.G.) KG VI issue, overprinted GWALIOR, you are on a winner. Catalogued by Gibbons at 1/-, it is cheap at ten times that price.

# From Our Readers

*This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.*

## DURBAN'S ZULU RESERVE

During a stay at Durban, Natal, I was lucky enough to make a trip, accompanied by my parents, to the famous Zulu Reserve in The Valley of a Thousand Hills, one of the noted beauty spots of South Africa.



In the Zulu reserve in the Valley of a Thousand Hills, Natal. Photograph by J. B. Sears, Tunbridge Wells.

This is outside Durban itself, and is reached by motor coach, which does the journey in a few hours, winding along roads and wagon-tracks at rather a nerve racking speed. In places the road through the hills is said to have a gradient of 1 in 3. The surface is rough, and for a distance of 8 miles the way hugs the sides of the hills, twisting and turning, with a sheer drop of hundreds of feet on one side. The mountain scenery of the valley is superb.

The reserve itself covers a large area and its chief purpose is to preserve scenes of primitive Africa, where the natives may live their own lives undisturbed by modern civilisation. On alighting from the coach we were allowed to wander freely among the natives, who were quite friendly and gladly accepted sweets from us. The coach driver acted as interpreter, and all questions had to be asked through him. The native huts aroused a great deal of interest. They are constructed of grass, several of them forming what is known as a "kraal." We purchased beads and other souvenirs, and returned to Durban after a most intriguing afternoon.

J. B. SEARS  
(Tunbridge Wells).

## SCENERY FOR DINKY TOYS

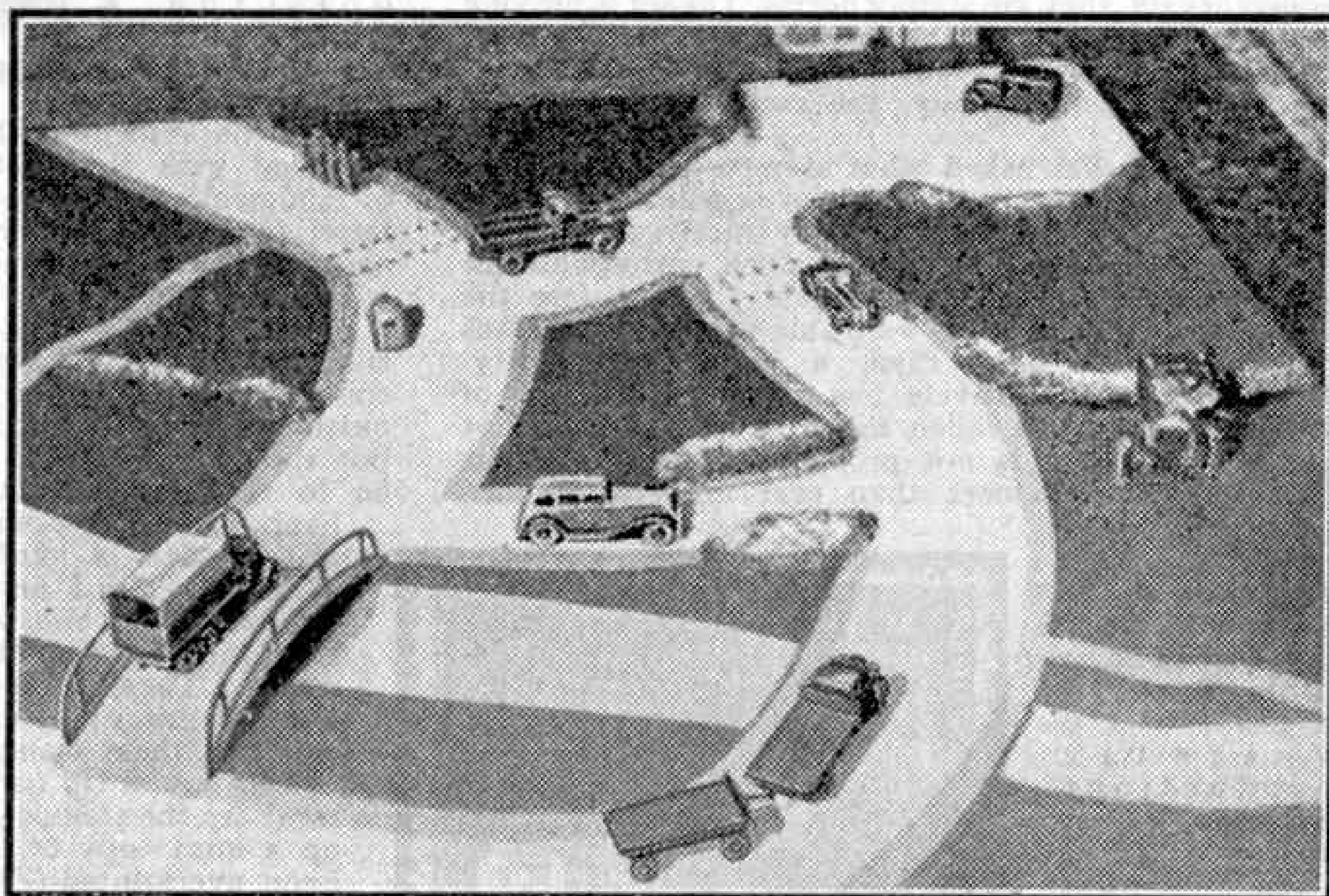
Scenic effects on model railways are now very widely used and, as all "M.M." readers know, they add very greatly to the interest of any railway. It occurred to me that something similar might be done for Dinky Toys road vehicles, and I worked out the scheme shown in the accompanying picture.

The base is a piece of the compressed cardboard that is used for ceilings and other similar purposes. This happened to be at hand, but of course wood or other material would do just as well. Painting was carried out in proper colours, fields being various shades of green, roads cream, pavements grey, footpaths dark stone; and the river was made of aluminium paint mixed with a small amount of blue. To form the bridge a tin can was cut down the seam and the bottom cut off. The edges were bent over  $\frac{1}{8}$  in. and flattened to prevent cut fingers, and the tin was then bent to the shape shown. A broom handle was of great help in the bending process. The side hand rails were soldered into position.

Small hills were made of sawdust mixed with glue, moulded to shape, and left to dry on newspaper, the paper being pulled off when the "hill" had set. The hills were then fastened to the board with Balsa cement and painted green with additions of yellow and red on the sides. This country makes an excellent practice grounds for tanks, which carry out interesting manoeuvres on them.

This is only a rough idea, but I hope it will suggest more elaborate schemes to other Dinky Toys enthusiasts.

W. BENNETT (Rochester).



The Dinky Toys road model of W. Bennett, Rochester.

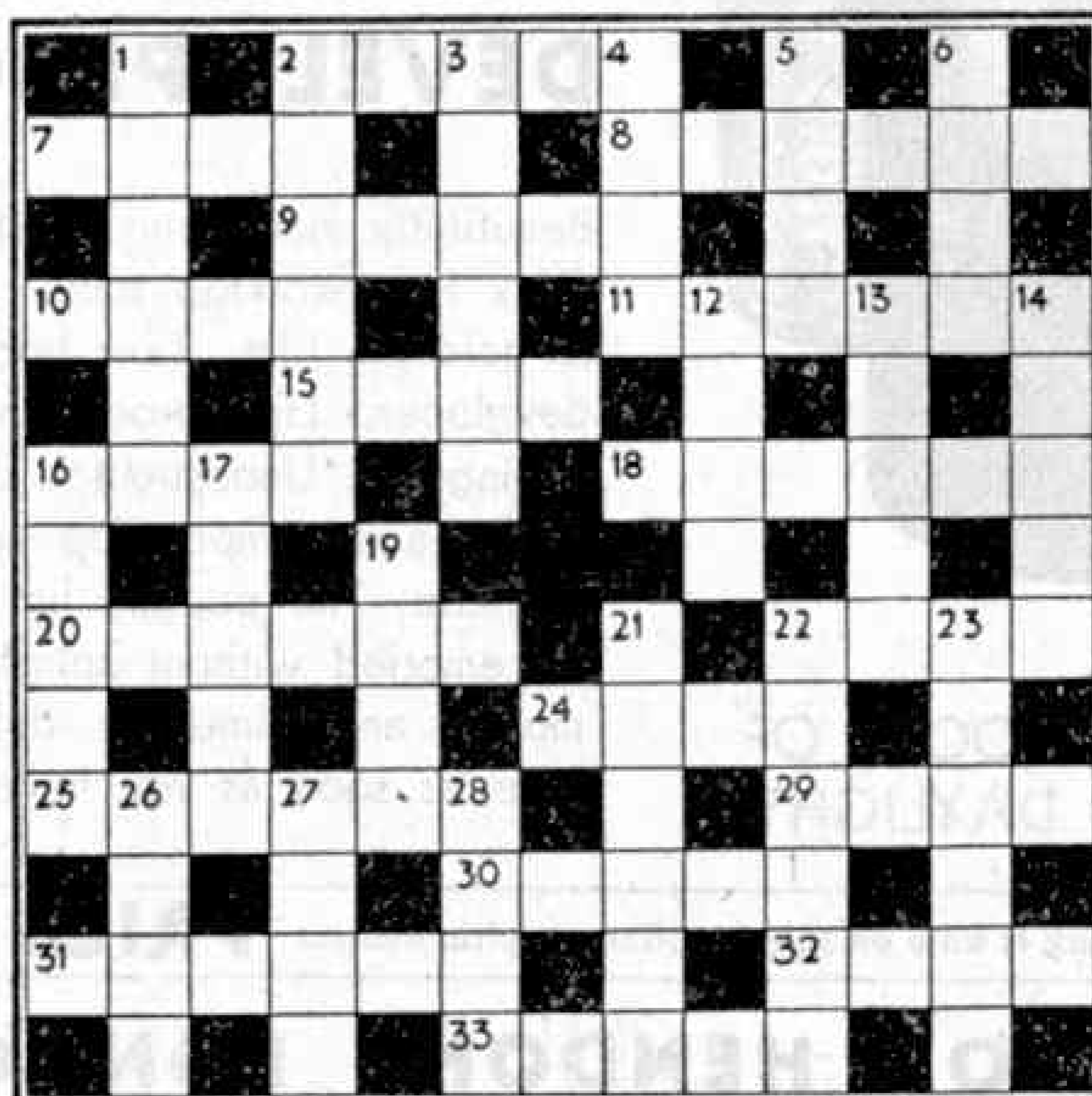
# Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

## Crossword Puzzle

### CLUES ACROSS

2. Artificial waterway
7. You
8. Eastern language
9. Precipitous
10. Rapid
11. Intricate
15. Lubricants
16. Imposture
18. Sun's path
20. Painter
22. Satirical attack
24. Restore
25. Aim
29. Vulgar
30. Oily fruit
31. Very small
32. Female sheep
33. Rainy snow.



### CLUES DOWN

1. Case
2. Tradition
3. Sewed with
4. Bird
5. Food
6. Measure
12. Rare gas
13. Dense
14. Racing vessel
16. Begin
17. Flower
19. Surrounded by water
21. Try hard
22. Road in town or city
23. In fact
26. Dry
27. Painful disease
28. Extremities

Judging by the entries received when a crossword is presented to our readers, a puzzle of this kind is very popular indeed, and this month we have another, the work of our reader T. K. Chaplin, whose previous efforts have always aroused interest. The puzzle is on straightforward lines. There are no alternative solutions, each clue meaning exactly what it says and only words that can be found in Chambers' or any other standard dictionary are included.

There are the usual two sections, for Home and Overseas readers respectively, and in each of these prizes of 21/-, 15/- and 10/6 will be awarded for the best entries in order of merit. In the event of a tie the judges will take neatness and originality into account.

Readers' solutions should be addressed "June Crossword, Meccano Magazine, Binns Road, Liverpool 13." Closing dates: Home Section, 31st July; Overseas Section, 31st January 1949.

## Choose Your Sport!

Every reader of the "M.M." will now be devoting his spare time to some pursuit that brings him health and contentment. He may take part in some active game, such as tennis or cricket, cycle, go hiking in the country or among the mountains, row on the river or swim. This month we give a list of eight summer pursuits, and entrants in our contest are asked to tell us A, which of these is their favourite, and B, the order in which they think the votes of competitors generally will place them.

Here is the list: Cycling, Cricket, Rowing, Tennis, Running, Swimming, Bowling and Walking. It is not necessary for any competitor to place his own favourite at the head of list B.

In each of the two sections, for Home and Overseas readers respectively, there will be prizes of 21/-, 15/- and 10/6. There will also be Consolation Prizes for other good efforts, and in the event of a tie for any prize preference will be given to the entries showing the neatest or most novel presentation.

Entries should be addressed "June Sports Contest, Meccano Magazine, Binns Road, Liverpool 13." The

closing date in the Home Section is 31st July, and that in the Overseas Section is 31st January 1949.

## June Photographic Contest

This is the sixth of our 1948 series. At this time of the year most photographers are interested in the outdoor sports and games suitable for the season, and this month we ask them to submit pictures related to these. Any pursuit that can be called a summer sport or game will provide suitable opportunities for entrants. Each entry must have been taken by the competitor, and on the back of the print must be stated exactly what the photograph represents. A fancy title may be added if desired.

Entries will be divided into two sections, A for readers aged 16 and over, and B for those under 16. They should be addressed "June Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13." There will be separate sections for Overseas readers, and in each section prizes of 21/-, 15/- and 10/6 will be awarded. Closing dates: Home Section, 30th June; Overseas Section, 31st December.



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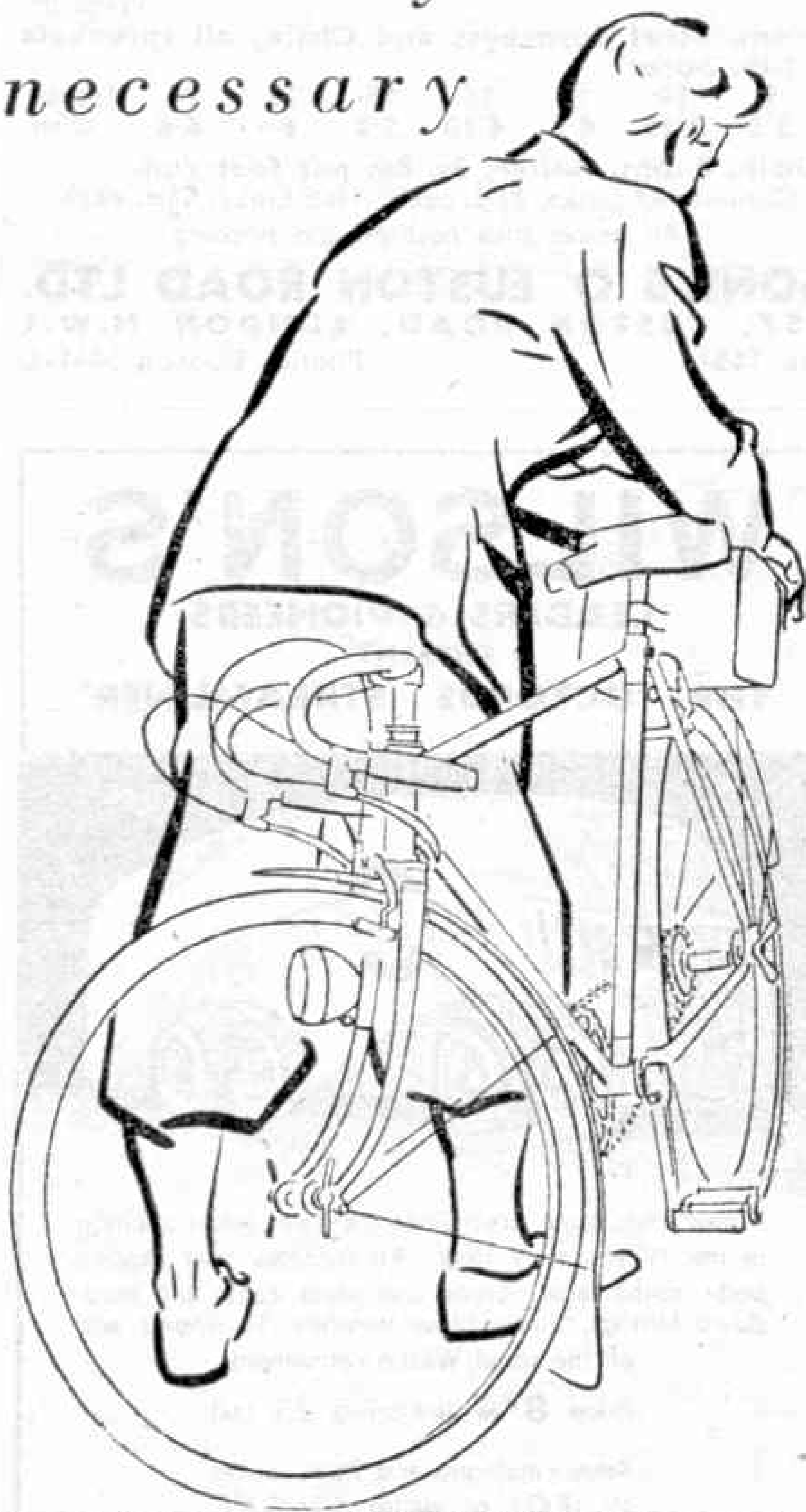
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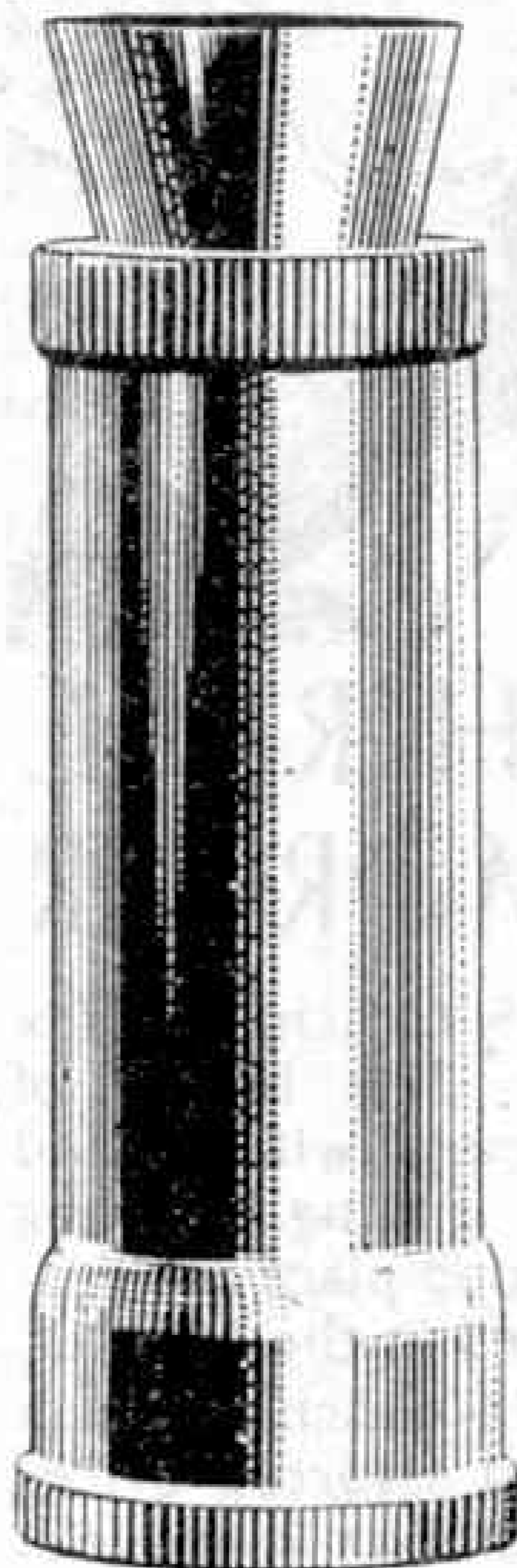
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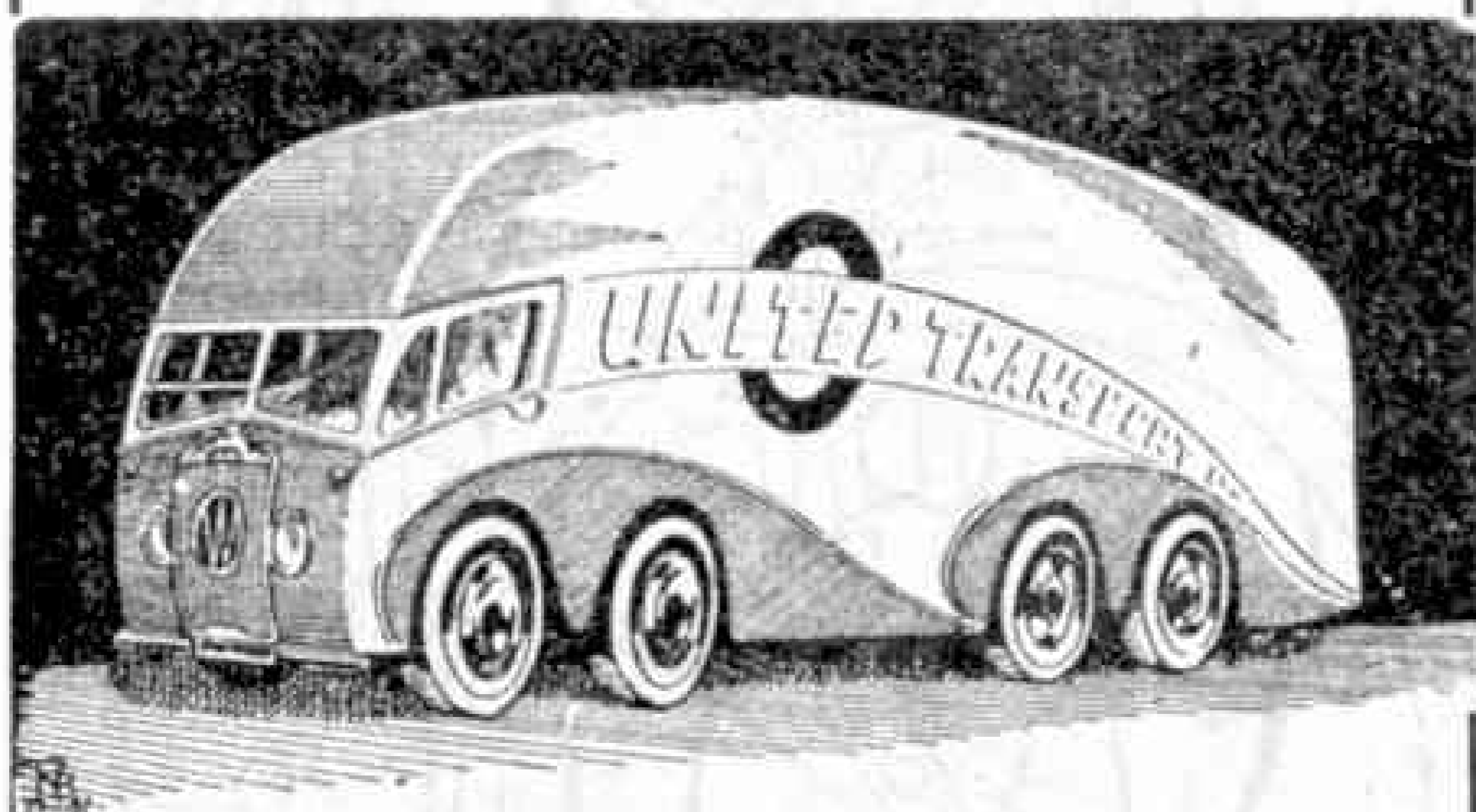
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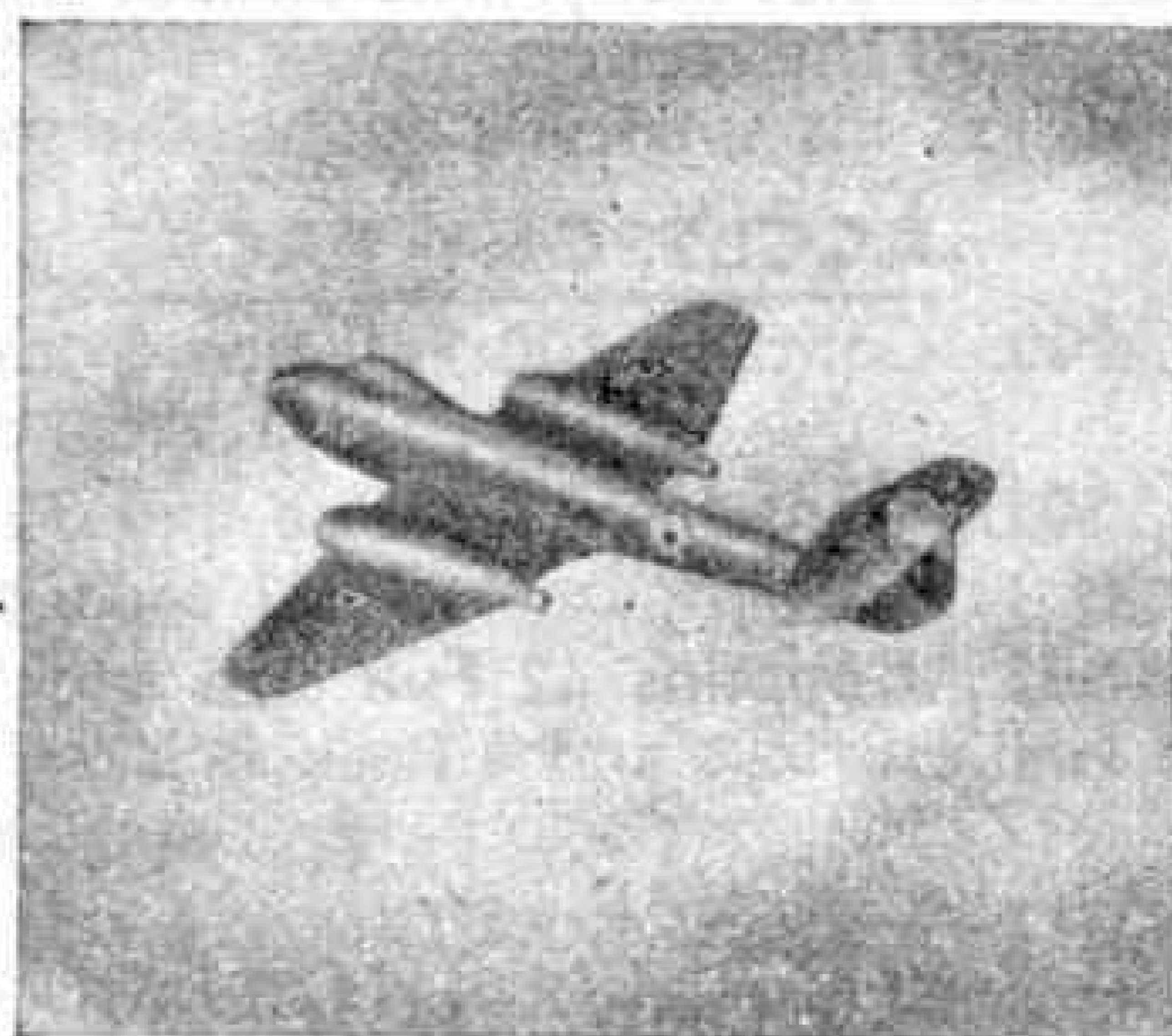


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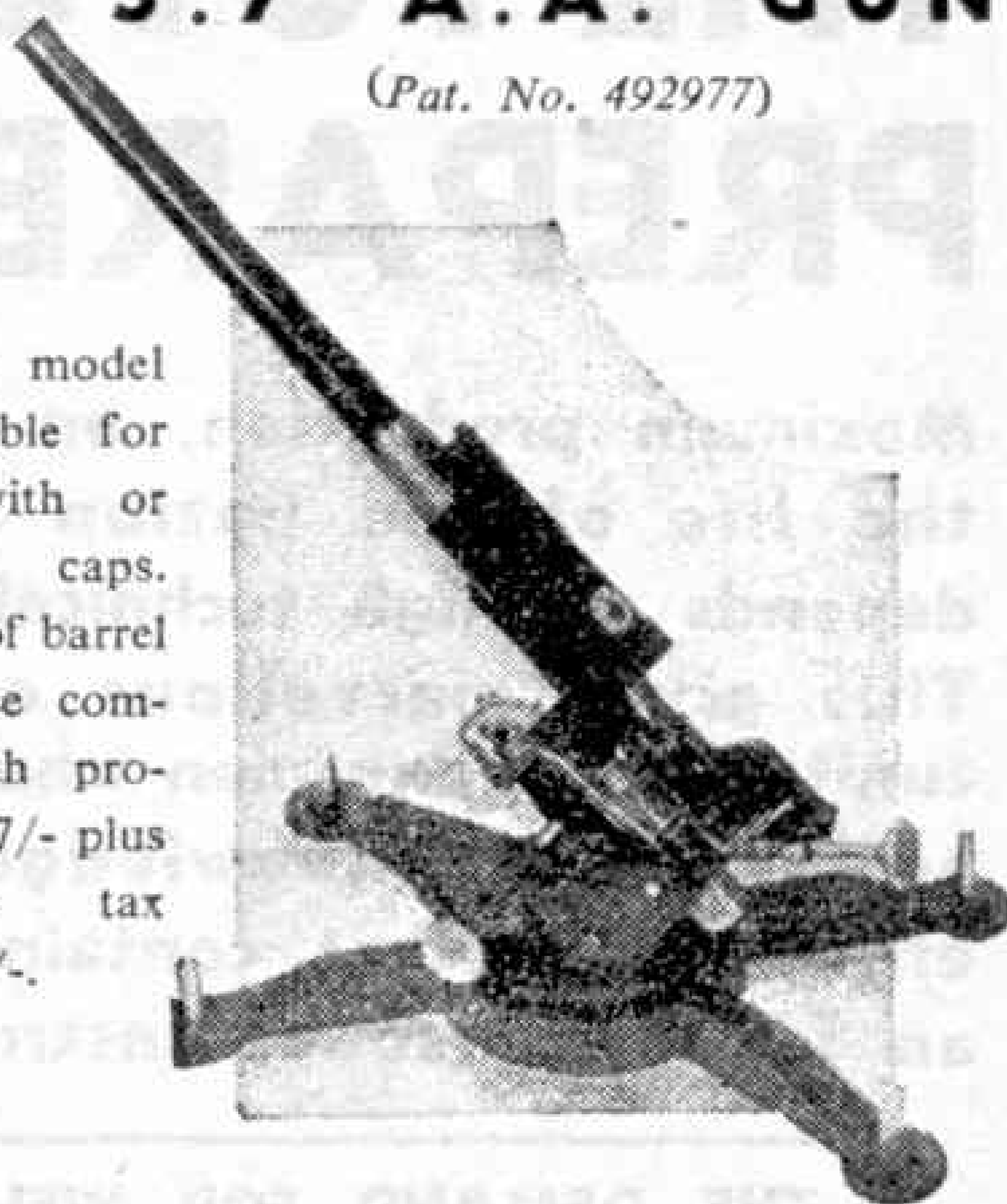
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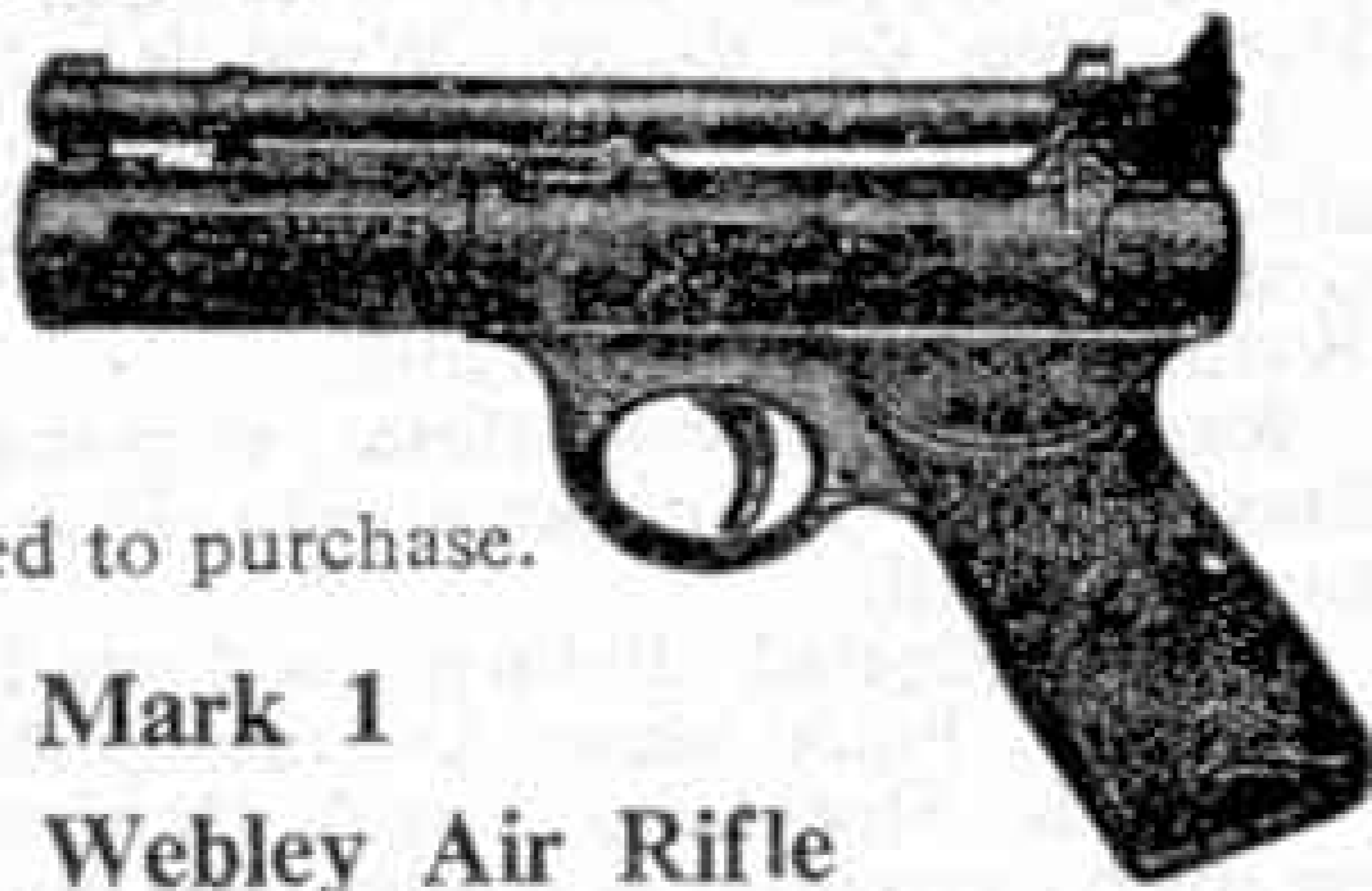
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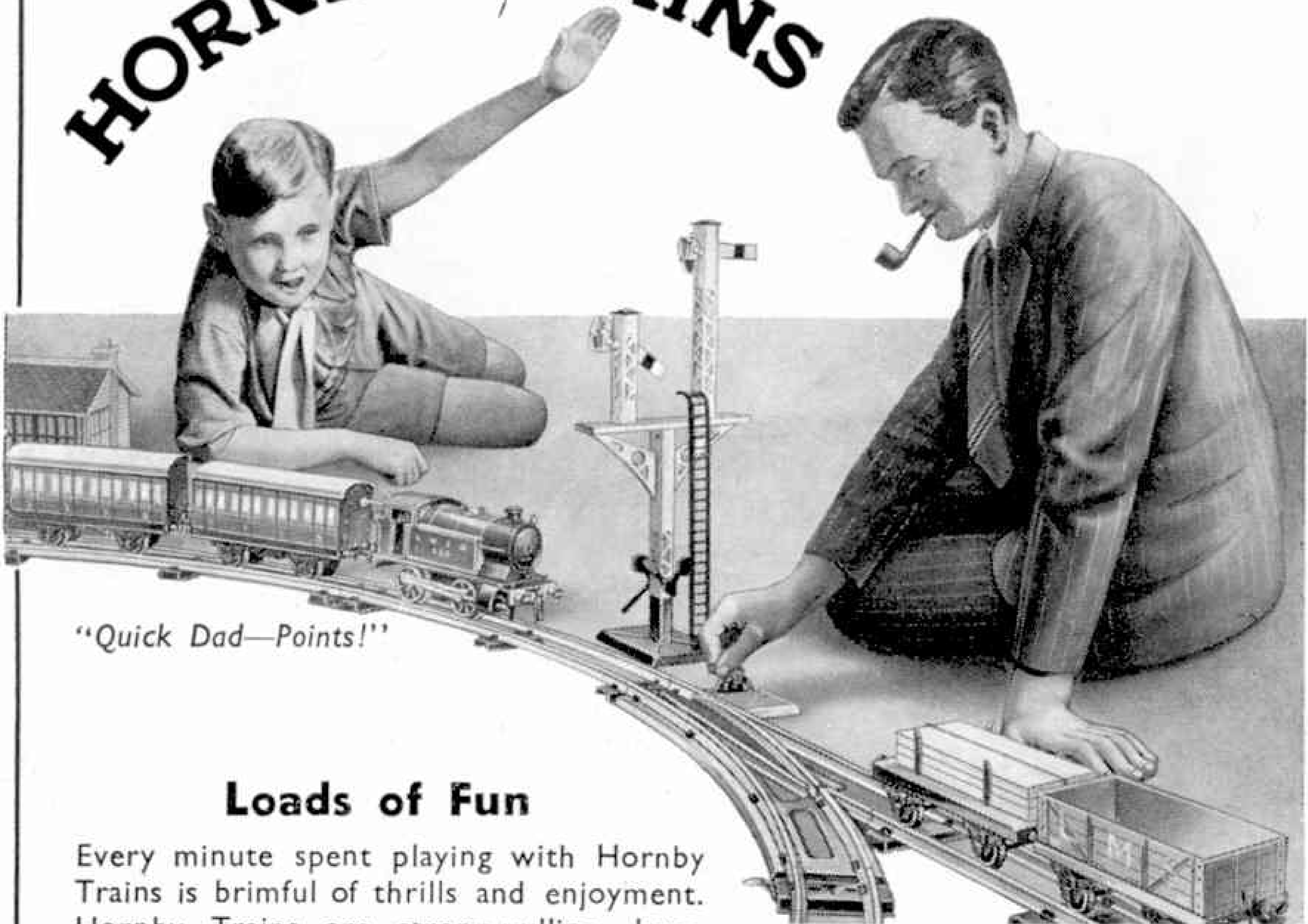
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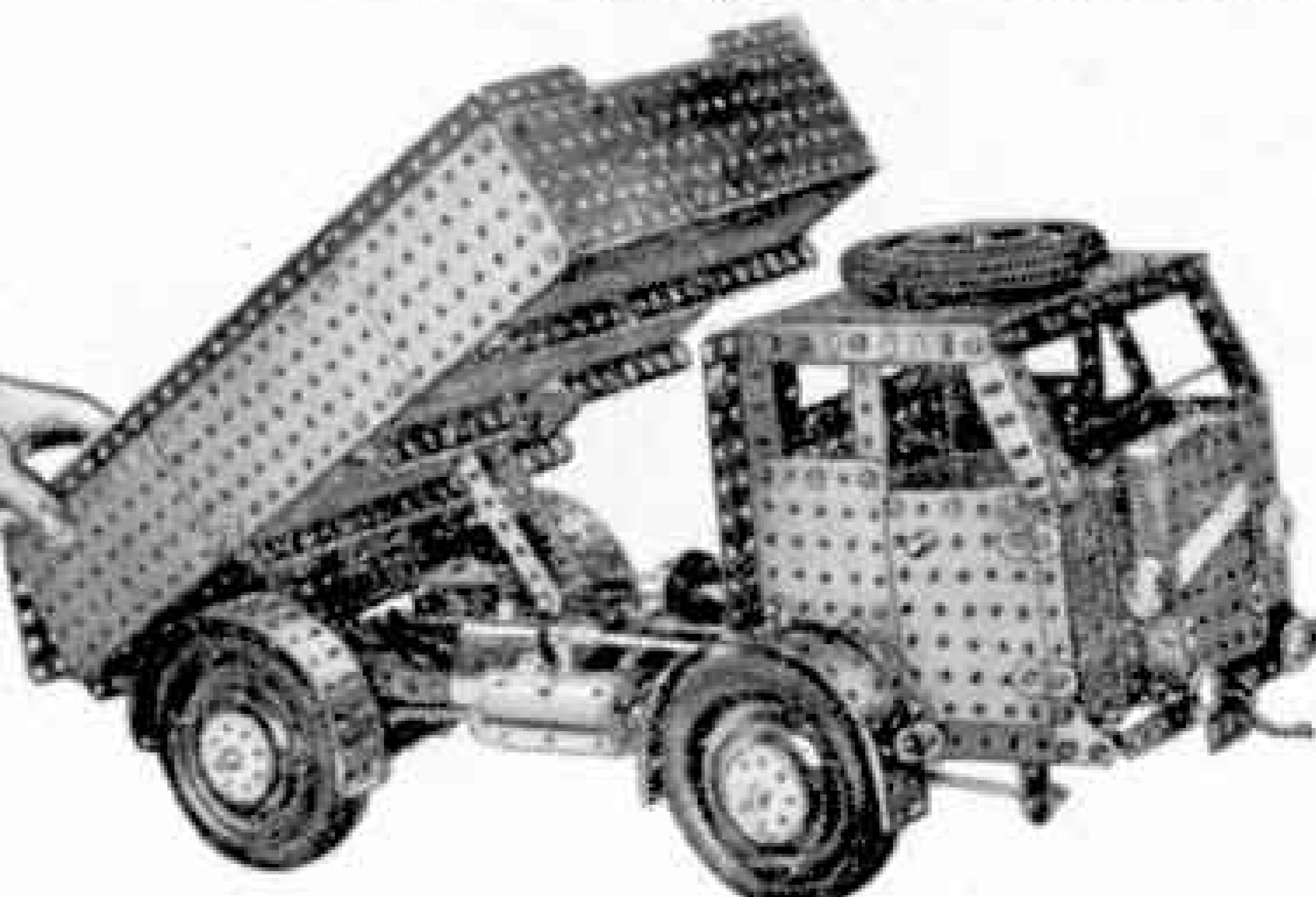
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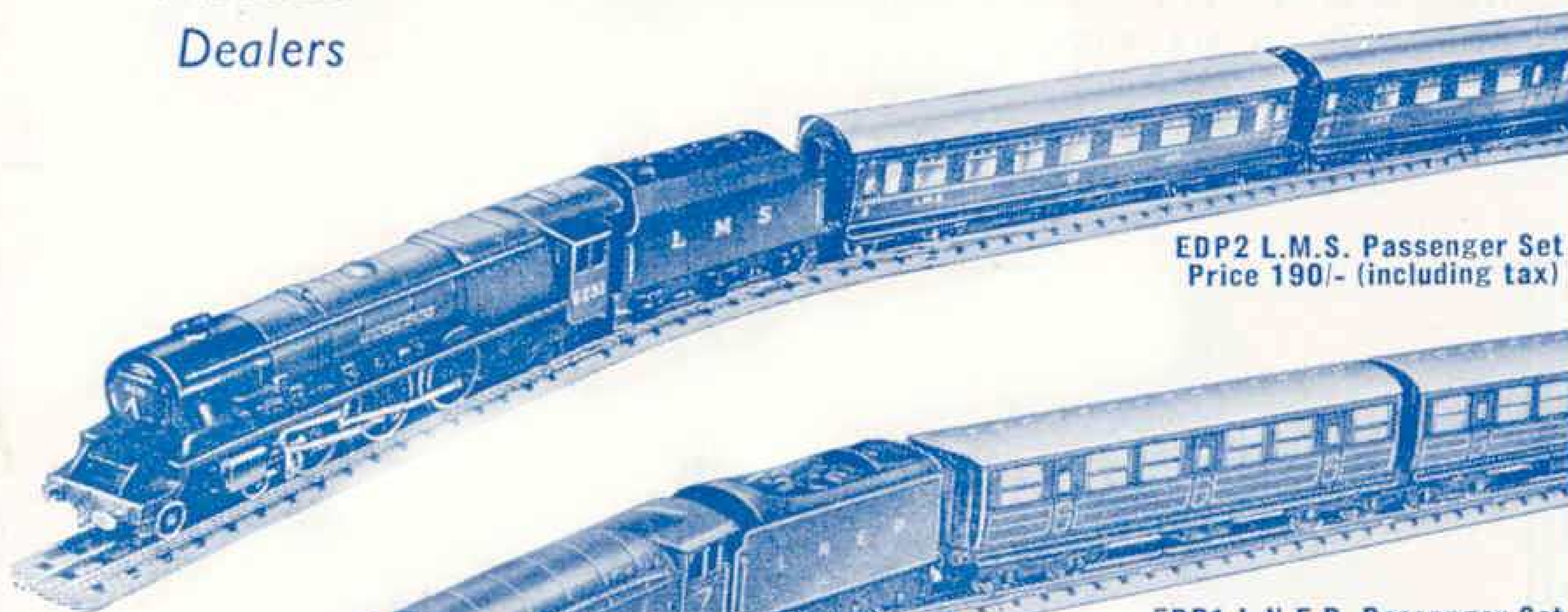
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